

April 1929

50 Cents

# MOTOR BOATING

*The Yachtsmen's Magazine*

**FITTING-OUT  
NUMBER**



APRIL

We invite inquiries with blue prints

# BOHNLITE

**62% LIGHTER THAN IRON**

Introduced nationally but a few months ago, Bohnalite, the new light alloy, is attracting unusual attention.

Manufacturers in all lines of business are familiarizing themselves and their engineering staffs with the advantages of Bohnalite.

We, however, have a suggestion to make: When you send in your inquiry for Bohnalite literature and general Bohnalite information, send along your blue prints and samples if possible at the same time. This will facilitate matters and give you more prompt and more specific information on your requirements.

Bohnalite was developed by Chas. B. Bohn, who for years searched for a substitute for iron without iron's excessive weight.

If your product is made of metal you should know about Bohnalite.

If your product is only partially made of metal you should know about Bohnalite.

If you use metal in your factory you should know about Bohnalite.

This new light alloy is 62% lighter than iron yet it is just as hard.

Bohnalite has high uniform hardness.

Bohnalite has great density.

Bohnalite has a fine grained structure.

Bohnalite has exceptional strength.

Bohnalite is ductile.

Bohnalite has excellent bearing qualities.

Scores of manufacturers are already

using Bohnalite in a wide variety of industries.

We have just published a new book which explains this light alloy, illustrates many of its uses and supplies you with detailed physical properties.

In sending for this book, *accompany your inquiry with your blue prints* and samples if possible, then we can give you the prompt service you desire.

**BOHN ALUMINUM & BRASS CORPORATION**  
DETROIT, MICHIGAN

*Also manufacturers of Nelson Bohnalite Pistons  
and Bohn Ring True Bearings*

New York      Cleveland      Chicago      Philadelphia  
Pittsburgh



**CHAS. B. BOHN**

The authority who developed Bohnalite

**THE WORLD'S GREATEST AND LATEST LIGHT METAL**

Said  
**COMMODORE WILLIAM M. ELDRIDGE,**  
*New York Outboard Motor Association:*  
 "They're wonderful! I never saw  
 anything start so easily!"

Certainty  
 and Ease  
 of  
 Automobile  
 Starting

# The **SEA-HORSES**

## Universally Acclaimed the Greatest Advance in Outboard Motoring History

—a few typical comments made by boating authorities upon the occasion of the first public SEA-HORSE demonstration — held indoors at the Colonial Yacht Club, New York.



Said  
**COMMODORE JULES HEILNER,**  
*Colonial Yacht Club:*  
 "I have wondered when the outboard motor would catch up with the modern automobile in refinements. Here is the answer—in the quiet Johnson Underwater Exhaust and easy starting provided by the Johnson Release Charger!"



### The Six SEA-HORSE Models

**SEA-HORSE 3:**  
 (RC.UE.) 4-cylinder rotary valve motor. \$325.

**SEA-HORSE 16:**  
 (RC.UE.) Twin cylinder rotary valve motor. \$250.

**SEA-HORSE 14:**  
 (RC.UE.) Twin cylinder motor. \$230.

**SEA-HORSE 10:**  
 (RC.UE.) Twin cylinder motor. \$185.

RC—Release Charger

UE—Underwater Exhaust

FPS—Full Pivot Steering

**JOHNSON MOTOR COMPANY, 3081 Pershing Road**  
**Waukegan, Ill.**

*IN CANADA: Canadian Johnson Motor Company, Ltd., Peterborough, Ont.  
 Distributors for British Columbia: Hoffars, Ltd., Vancouver, B. C.*

# Johnson

*Outboard* **Motors**

**WORLD'S LARGEST MANUFACTURER OF OUTBOARD MOTORS**

MoToR BOATING, April, 1929. Volume XLIII, No. 4. Published monthly at 57th Street at Eighth Ave., N. Y., U. S. A., by International Magazine Co., Inc. Yearly subscription price: United States, \$3.00; Canada, \$3.00; Foreign \$4.00. Entered as second-class matter April 15, 1925, at the Post Office at New York, under the act of March 3, 1879. (Printed in U. S. A.)

*A Striking Statement from  
Mr. W. F. Ruddock  
of the famous  
RUDDOCK  
BOAT and  
YACHT WORKS:*

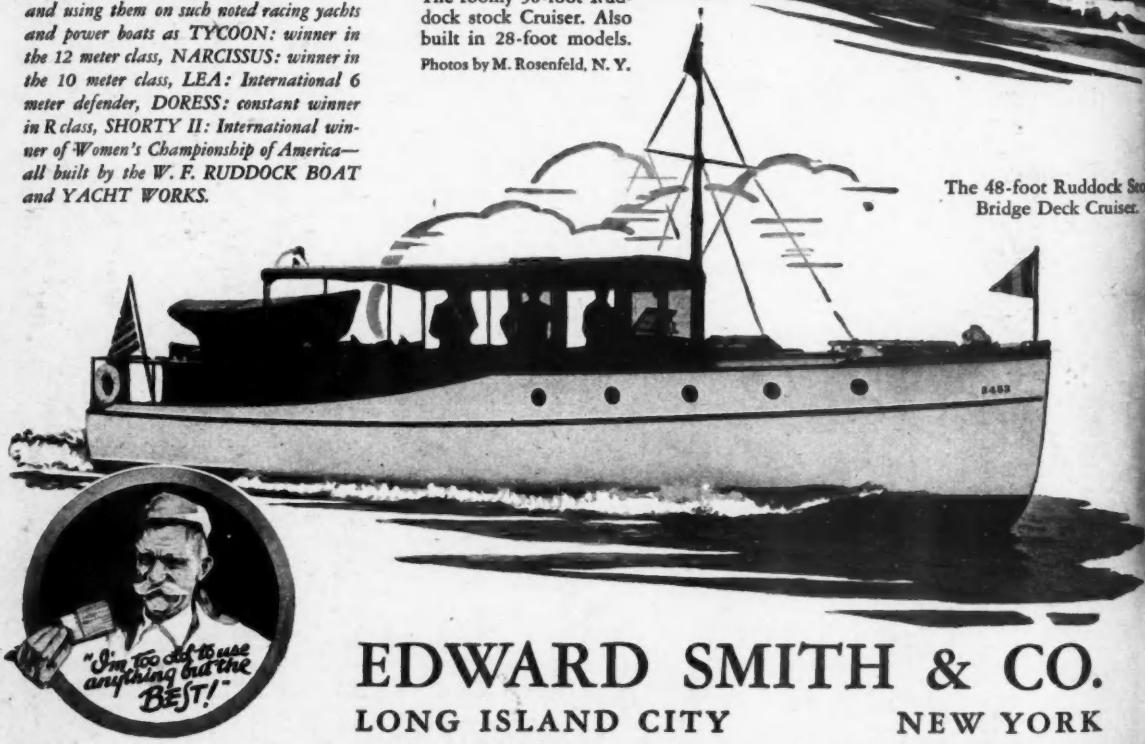
# Smith

## Paints and Varnishes are the best I know of...

Mr. Ruddock backs up his opinion by using Edward Smith & Co's paints and varnishes on his stock boats . . . and by recommending and using them on such noted racing yachts and power boats as *TYCOON*: winner in the 12 meter class, *NARCISSUS*: winner in the 10 meter class, *LEA*: International 6 meter defender, *DORESS*: constant winner in R class, *SHORTY II*: International winner of Women's Championship of America—all built by the W. F. RUDDOCK BOAT and YACHT WORKS.

The roomy 30-foot Ruddock stock Cruiser. Also built in 28-foot models.  
Photos by M. Rosenfeld, N. Y.

The 48-foot Ruddock Stock Bridge Deck Cruiser.



**EDWARD SMITH & CO.**  
LONG ISLAND CITY      NEW YORK  
Makers of Marine Paints and Varnishes since 1827

SCRIPPS... like thirty-six other  
leading engine and boat builders  
... recommends the use of *Duplex*

# D U P L E X

Has the widest distribution of *any*  
MARINE ENGINE OIL

ENTERPRISE OIL COMPANY, INC., BUFFALO, NEW YORK

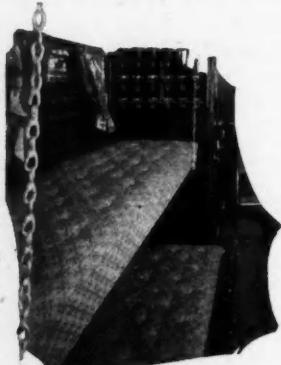
Mention MOTOR BOATING, 57th St. at Eighth Ave., New York



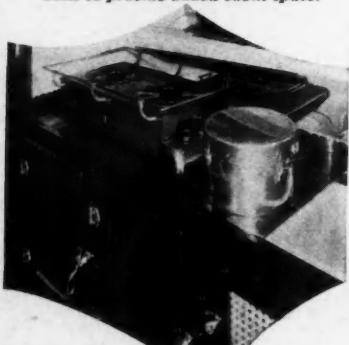
*The very finest of driving controls and instruments combine with a full vision windshield and fully upholstered seat to make driving a real pleasure*



*The after cockpit is a jolly place to ride with your guests and enjoy the sea-free life aboard this elegant craft*



*Four Pullman berths may be quickly brought into use while cruising. During the day they fold back to provide added cabin space.*



*The galley is compact—with all complete to furnish the hostess with adequate resources to prepare a delicious repast*

# Not only a FAST COMMUTER ~~~~~ *But* ~~~~~ a Self-Contained Cruiser with every Cruising Comfort

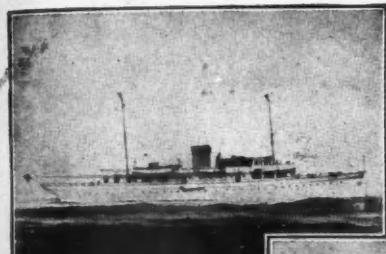
**T**HREE are few boats to approach the 39 foot Seagull Sedan Cruiser in utility—in beauty—or in speed. Certainly none to measure up to its detailed completeness and smart design fashioned into it by its skillful creator, John Hacker. Each sweeping curve is a promise of new grace and speed. Aboardship every appointment and fitting—galley, lockers, toilet, berths and easy chairs—match the comforts of your home. For the man who demands speed, the Seagull responds with 30 to 32 miles per hour. The feel of the boat is perfect—its action so smooth and effortless that you seem to be riding the airlanes rather than the waterways. Visit our plant—see the Seagull—the 42 foot twin screw Custom Commuter, or the 38 foot Red Arrow Day Cruiser under construction—Ride with us—Learn how intimately any one of these three boats will fit your most exacting needs. Full details on request. Priced from \$12,800 to \$22,500.

*E* *Represented by A. C. F. Salons, 217 W. 57th St., New York City; 500 E. Jefferson Ave., Detroit; S. Clyde Kyle, Rialto Bldg., San Francisco; Walter Moreton, 1043 Commonwealth Ave., Boston; Kimball Marine Corp., 29 Wacker Drive, Chicago; R. B. Lechinger, Houston, Texas*

*ROBINSON*  
*Seagull*

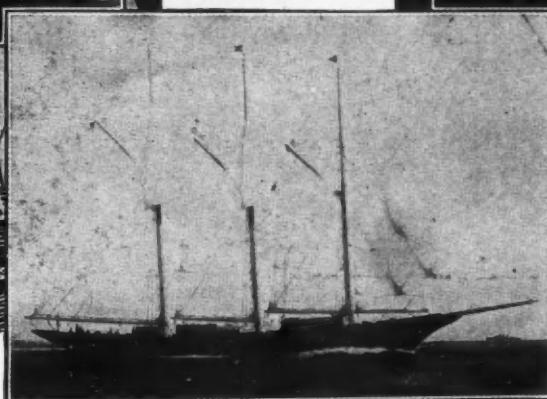
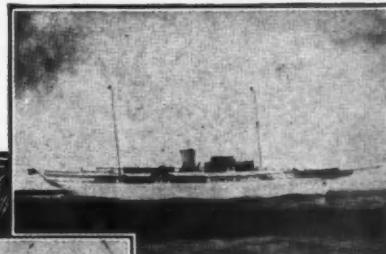
**ROBINSON MARINE CONSTRUCTION CO.**  
BENTON HARBOR, MICHIGAN

## BESSEMER MARINE DIESEL ENGINES



*Right*—The Diesel yacht Hi-Emanzo—267 feet long, now building for Mr. H. E. Manville. The power plant consists of two 1500 H. P. Bessemer direct reversible Diesel Diesels and two 100 K. W. Bessemer Diesel generating sets. Designed by Henry J. Gielow, Inc. Building at Bath Iron Works.

*Left*—The 165 foot Diesel yacht now building for a Detroit Automotive president. This yacht is being built with a power plant of eight Bessemer Diesels of 425 H. P. each, and with two 50 K. W. Bessemer generating sets. Designed by Henry J. Gielow, Inc. Building at Lawley's.



The 225 foot schooner building for Mr. Carl Tucker. Powered with a Bessemer 6 cylinder 950 H. P. direct reversible engine and two Bessemer 50 K. W. generating sets. Designed by Henry J. Gielow, Inc. Building at Lawley's.

## On the Largest, Finest and Most Powerful Diesel Yachts Now Building in the Shipyards of the World

AGAIN the choice of power plants falls to Bessemer Diesel engines—supreme in performance, unmatched in smoothness.

It is a noteworthy fact that as larger, finer yachts are built, the power plants are inevitably Bessemers. Why? Past performance is the answer.

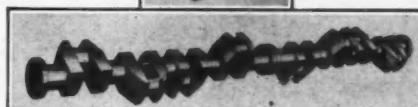
**BESSEMER ENGINE COMPANY**  
23 Lincoln Avenue :: Grove City, Pa.



**SPECIAL YACHT REPRESENTATIVE:**  
EARL H. CROFT, Inc., 25 W. 43rd St., New York

The extra large Bessemer crankshafts mean smoothness of operation and lack of vibration. The diameter of the crankshaft in the 950 H.P. engine is 12½ inches.

Bessemer "One Lever Control" centralizes the complete control of the engine in one lever. It is simplicity itself—stopping, starting, and reversing by one operation.



## BESSEMER MARINE DIESEL ENGINES

Mention MOTOR BOATING, 57th St. at Eighth Ave., New York

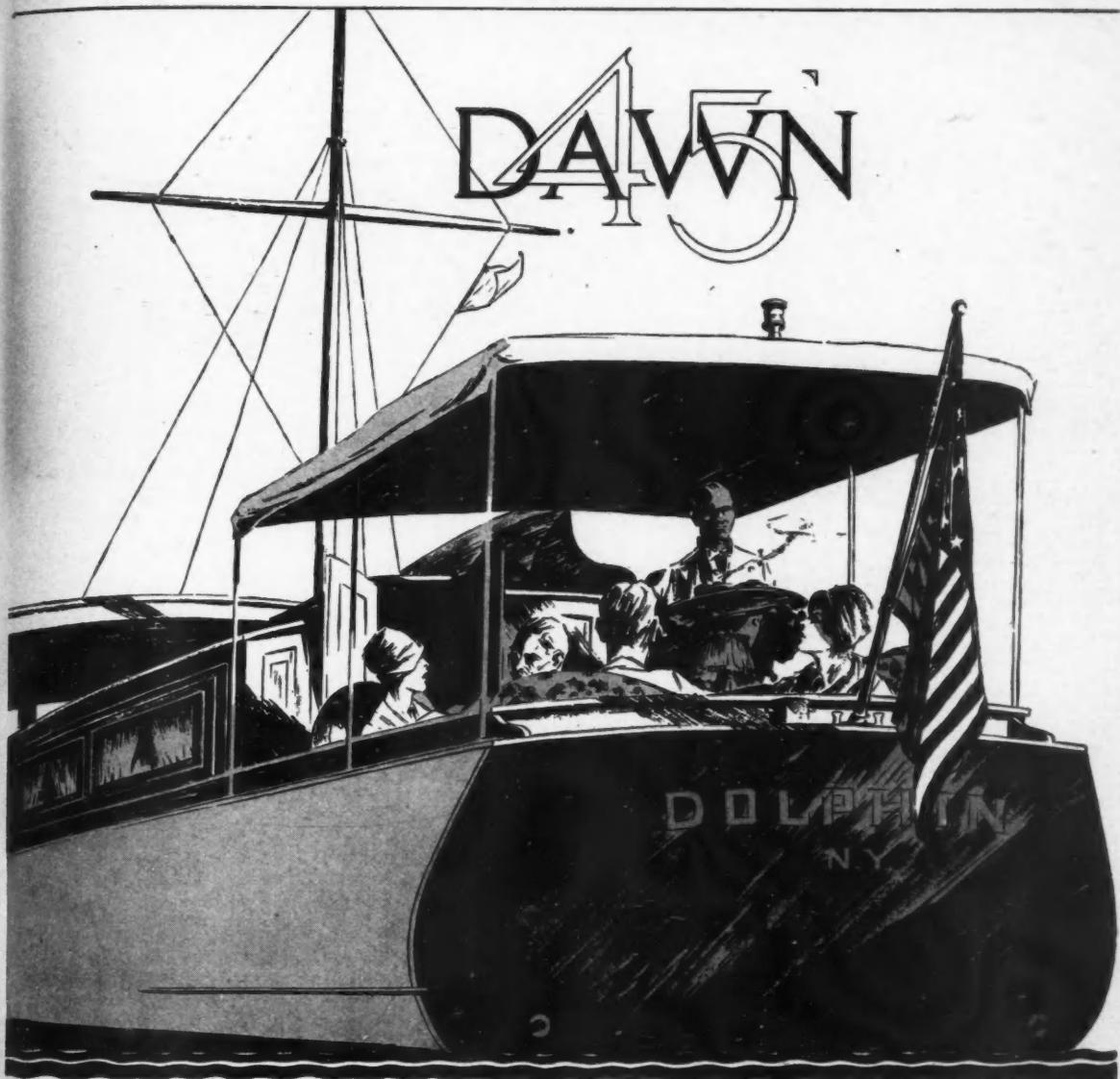


# WATERFRONT ESTATE *for sale*

**T**HIS beautiful seven-room house located at Southport, Connecticut, fifty miles from New York City and six miles from Bridgeport, is an ideal all-year home for a yachtsman. Within one block of Pequot Yacht Club (member of Racing Association of Long Island Sound). Building is well constructed, ideally arranged and has southern exposure. Two baths, hot water heating system, city water, gas and electricity. Property includes 250 feet of water frontage, septic tank, two-car garage, private line telephone. Location is convenient to schools, churches, transit lines and N. Y., N. H. & H. railroad to New York City and other points. Within two blocks of Boston Post Road. Overlooks yacht club anchorage, Country Club of Fairfield, and gives unbroken view of Long Island Sound for distance of thirty miles. Private beach on which to haul boats. Restricted harbor, no commercial enterprises allowed.

Thos.  
N. Cooke

217 STATE STREET  
WESTPORT, CONN.



## When the white flag flies from the halyard

Comfortable and cool in easy chairs drawn up to a big steady table you and your guests are served . . . water laps the sides . . . soft radio music comes from the cabin . . . shaded table lights glow . . . an electric percolator bubbles . . . dinner in the cockpit of the Dawn 45 is an enjoyable function.

Then to the bridge deck with its restful cushions and harbor view . . . some for cards . . . others just to lounge and chat . . . while the crew cleans up in the galley unseen . . . unheard.

And so all details of living have been worked out for the comfort and happiness of the owner, guests . . . and crew on this big little yacht. To fully appreciate the Dawn 45 you should go aboard her and study the layout . . . the appointments . . . the finish. To those who can't visit our yards we will gladly send literature.

15.900  
*complete*

*Afloat at Clason Point  
Powered by twin Lathrop*

THE DAWN BOAT CORPORATION

CLASON POINT

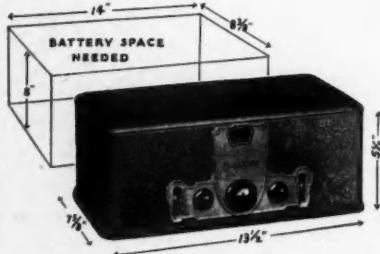
Westchester 7000

NEW YORK CITY

Established 1906



"YOU'RE THERE WITH A CROSLEY"



The 5 Tube Dry Cell Operated BANDBOX, JR., \$35  
THE BANDBOX, JR., may be easily removed from  
its metal cabinet and installed in any panel. It does  
not use an excessive amount of current.

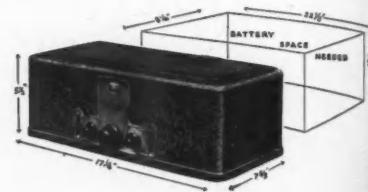


MUSICONE, \$15  
Original successful cone speaker, outstanding today  
among magnetic speakers. Improved—modern.

## Battery Type Radio Suitable for Short Antenna

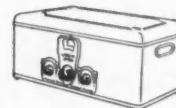
No  
Waste  
Space

Latest  
Radio  
Circuits  
and features



6 Tube Battery Type BANDBOX, \$35

Genuine neutrodyne, with all modern refinements.  
Powerful, sweet toned and clear. Use storage A battery and B & C batteries.



New AC Electric Power  
Speaker Operating  
GEMBOX, \$65

New radio refinements such as shielding. New neutrodyne circuit. Ultraphase dial. 171-A power tubes; three stages radio amplification—power speaker operation—power supply self-contained. No regeneration in detector tube. Switch on front of set. 7 tube AC Electric table model.

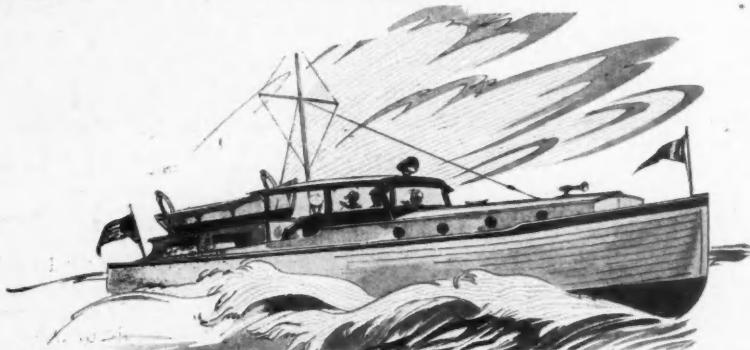


8 tube AC Electric  
SHOWBOX \$80

Genuine neutrodyne, 3 stages of radio amplification, detector, 2 stages audio (last one being two 171-A push-pull power tubes) and 280 rectifier. Operates on same current as GEMBOX.



New Crosley Dynasone, \$25  
Dynamic speaker of new armature type  
gives volume, depth of tone and rich reproduction never before possible in the popular priced field.



# GROSLEY RADIO FOR MOTOR BOATS

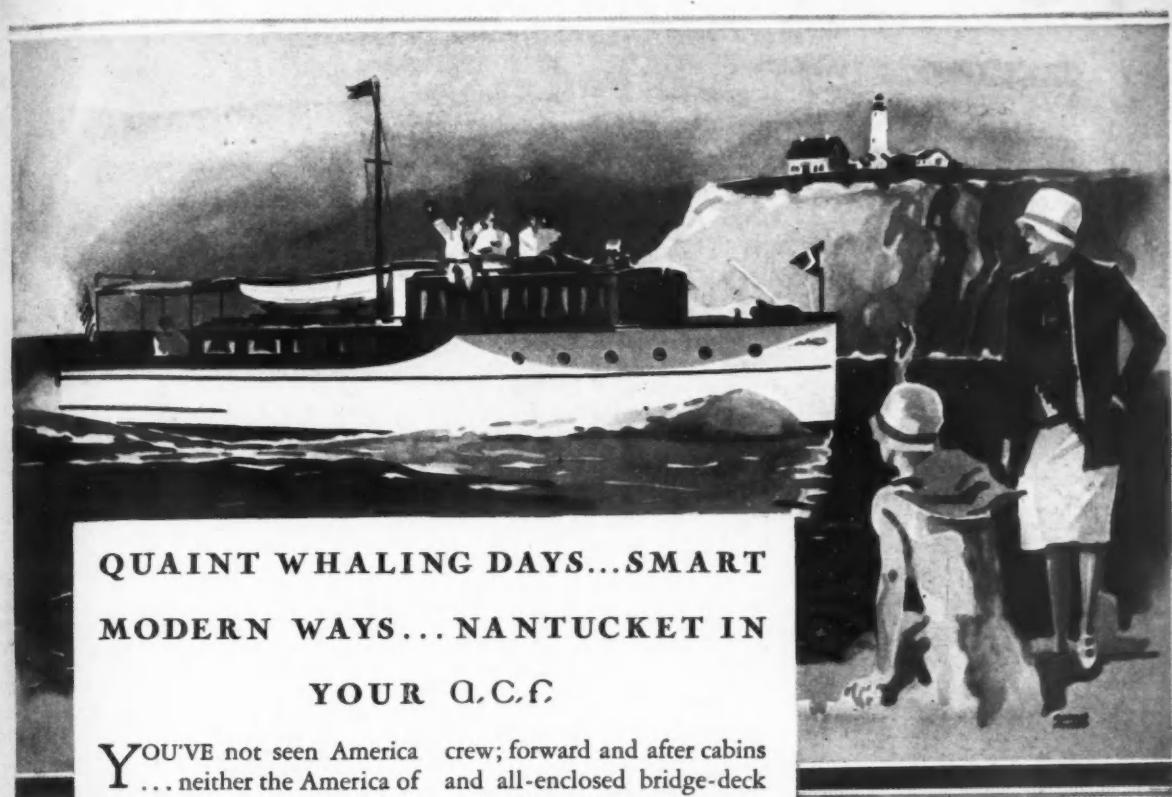
THE CROSLEY RADIO CORPORATION

Powell Crosley, Jr., Pres.  
Cincinnati, Ohio  
Dept. 62

Owners of WLW—the Nation's Station

Montana, Wyoming, Colorado, New Mexico and West Prices Slightly  
Higher. Prices Quoted Do Not Include Tubes.

Advertising index will be found on 3rd last page



## QUAINT WHALING DAYS...SMART MODERN WAYS... NANTUCKET IN YOUR A.C.F.

YOU'VE not seen America... neither the America of our forefathers nor that of their socially distinguished descendants... till you've seen Nantucket. Nowhere else has time laid so light a finger on Colonial days, nor retained so charming a reward for gentle breeding, as in the sea-circled land where quaint Sankaty light flings its warning beacon toward the home of Moby Dick.

Even though the sea were not your only highway, there could be no more delightful way to go than aboard the newly redesigned A. C. F. "47". To call it the most popular cruiser afloat is only justice.

Yet, it is really *injustice* to call it a cruiser, at all. For here is a vessel which, in speed, staunchness, and cruising comfort deserves the name of "yacht".

Picture—if you can, in a 47-footer—a luxurious rear cockpit that seats eight; sleeping accommodations for five and

crew; forward and after cabins and all-enclosed bridge-deck with admirable headroom; a lavatory accessible to both master cabins; a three-burner galley complete with sink, icebox, and cupboard; capacious crew's quarters; even a high-powered, built-in radio... these details must be seen to be appreciated.

The smart, rakish funnel of the "47" allows you to recognize her from afar as readily as does the quality of its materials and fittings when aboard. Like all A. C. F. craft, she is completely equipped, even to linen, silver and china, ready to go. When shall it be?

Write for full details to American Car and Foundry Company, A. C. F. Marine Salon, 217 West 57th Street, New York. Other show rooms at: Boston—Noyes Marine Sales Co., 1037 Commonwealth Avenue. Detroit—A. C. F. Salon, 500 E. Jefferson Avenue. Cleveland—N. J. Shea, 1424 Lauderdale Avenue, Lakewood. San Francisco—S. C. Kyle, 427 Rialto Building. Chicago—Ward A. Robinson, 58 E. Washington Street. Wilmington, Del.—American Car and Foundry Company.

AMERICAN CAR AND FOUNDRY COMPANY

A.C.F.  
c r u i s e r s

# Monel Metal Shafts

Now standard power factor in

## All ROBINSON Seagull EXPRESS CRUISERS...



The 42-ft. Seagull express commuting cruiser powered for 32 M. P. H. with 200 H. P. Hall-Scott marine engine and Monel Metal propeller shaft in Goodrich Cutless rubber bearings. Built by ROBINSON MARINE CONSTRUCTION CO. at Benton Harbor, Mich.

ROBINSON MARINE CONSTRUCTION CO.  
INCORPORATED  
Benton Harbor, Mich.  
November 56, 1929.

THE INTERNATIONAL NICKEL CO., INC.,  
67 WALL STREET, NEW YORK, N. Y.  
Gentlemen:  
Attention: Mr. L. Muller-Phelps,  
When the new 1929 model of "Seagull" was  
designed, we determined that every item which was to  
become a part of her would be the best obtainable.  
It naturally followed that the shafting suggested itself,  
when we came to the use of Monel Metal immediately.  
We are pleased to state that we have adopted  
Monel Metal shafts as standard on all our new model  
"Seagulls".  
Very truly yours,  
ROBINSON MARINE CONSTRUCTION CO.  
By F. C. Gosselin

THE same properties that make Monel Metal so valuable for propeller shafts, also make it the ideal metal for many other marine parts and fittings. Monel Metal is available in the following shapes and forms: sheets—tubing—strip—wire—rope—woodscrews—nails—rivets—bolts and nuts—lag screws, etc. Have your next boat put together with Monel Metal wood screws. For detailed information about Monel Metal in any form, write to The International Nickel Company, Inc.

Monel Metal shafts increase the life of babbitt or bearing bronze and are especially recommended with Goodrich Cutless rubber bearings.

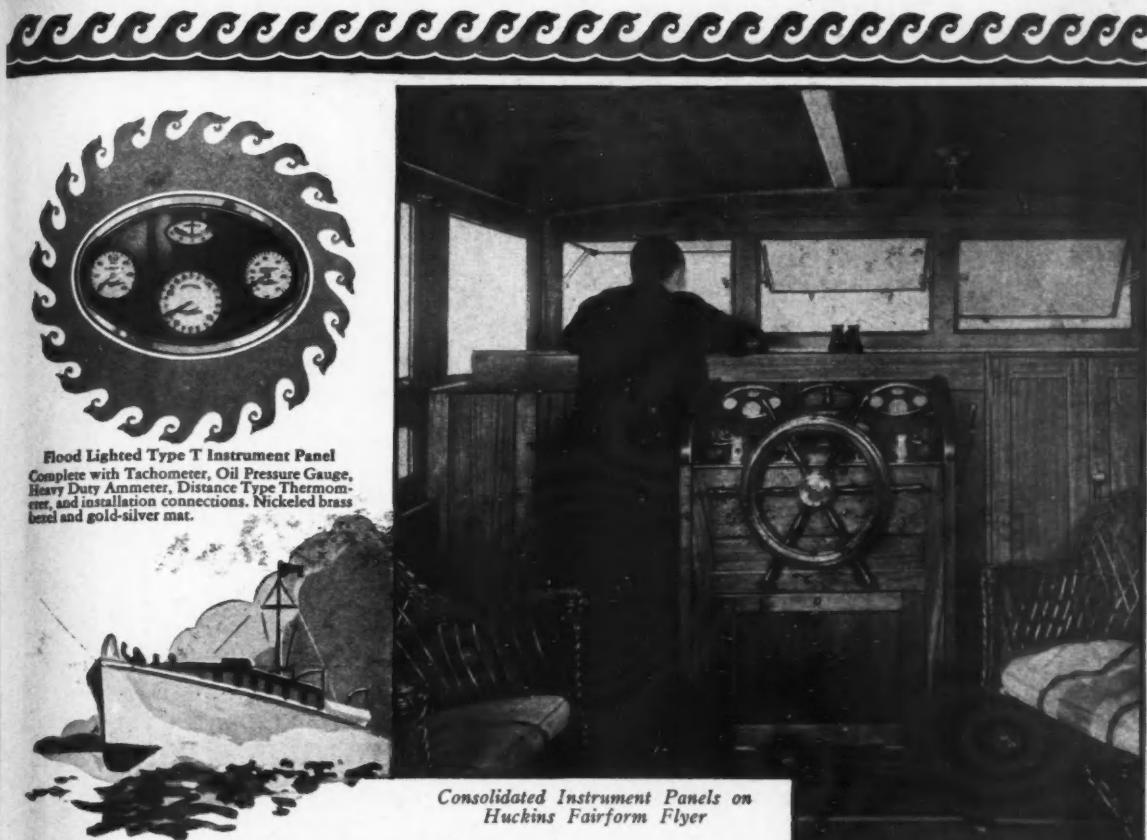
SEND FOR NEW FOLDER—"SHAFTS THAT STAND THE GAFF"

Monel Metal is a technically controlled Nickel-Copper alloy of high Nickel content. It is mined, smelted, refined, rolled and marketed solely by The International Nickel Company, Inc. The name "Monel Metal" is a registered trade mark.

# MONEL METAL

THE INTERNATIONAL NICKEL COMPANY, INC. 67 WALL STREET, NEW YORK, N. Y.





**Flood Lighted Type T Instrument Panel**  
Complete with Tachometer, Oil Pressure Gauge, Heavy Duty Ammeter, Distance Type Thermometer, and installation connections. Nickelized brass bezel and gold-silver mat.

Consolidated Instrument Panels on  
Huckins Fairform Flyer

**D**ARTING through gleaming waters, the twin-motored Huckins Fairform Flyer is largely dependent on its Consolidated instrument panels for a true report of each engine's operating condition. By a glance at the instruments in the flood-lighted panels, the pilot ascertains the slightest fluctuation in engine efficiency. Huckins yachts are standard equipped with Consolidated instrument panels.

To insure the regularity of your engine's fuel supply, regardless of cruising conditions, simply attach an electro-magnetic Feed-A-Motor fuel pump along the fuel line.

The new Consolidated double ignition switch is enclosed in a non-corrosive Bakelite case that completely protects the mechanism from atmospheric interference.

All Consolidated instruments are conscientiously manufactured from quality materials by skilled craftsmen under expert supervision. Consolidated precision manufacture means trustworthy instrument performance.

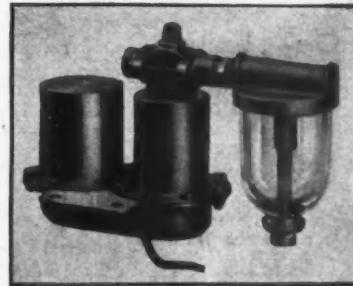
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**CONSOLIDATED INSTRUMENT CO. of AMERICA, Inc.**  
305 East 47th Street, New York City

*Subsidiary Companies*

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Aircraft Control Corp., Philadelphia, Pa.  
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Mention MOTOR BOATING, 57th St. at Eighth Ave., New York



**Single-Unit Feed-A-Motor**

Feed-A-Motor is an electrically driven fuel pump. Feeds engine any required capacity of fuel up to 18 gallons per hour. Parts made of brass, bronze, and Monel metal. Also double unit available.



**Ignition Switch**

New Consolidated ignition switch for double ignition use. Bakelite case eliminates corrosion, insuring longer performance. Also single ignition switch available. Dial 2 1/8 inches in diameter.



*A 60-65 mile runabout. Open type \$28,000. Sedan \$30,000. Delivered at New York.*

## World's Finest and Fastest Standard Runabout

**S**EA-LYON 65 is absolutely the last word in modern motor craft—a boat designed, built and powered like no other standard runabout in the world. Although engined for a practical cruising and commuting speed of 60 miles an hour and a maximum of 65 miles, this is no racing shell but a heavily framed, sturdily built craft that is not only fast but comfortable, smooth riding, reliable and as nearly indestructible as human ingenuity can make it.

The underbody design is a two step hydroplane, developed from a world famous type of record holders. The power plant is a twin screw installation of 425 H.P. Lyon-Tuttle Liberty Motors.

The construction may be judged from the fact that there is a 1 1/4" square steam-bent oak frame—one piece from gunwale to gunwale—spaced every 7" throughout the entire length of the hull. (It is customary in production boats to use a 3/4" or 7/8" bent frame every 24" to 30", alternated with built-up sawed frames.)

The hull has four watertight bulkheads. Both the sides and bottom are double planked, the bottom being 1 1/4" thick—more than twice the normal thickness. Here is a boat built to withstand the severe punishment of daily service at top speed in all waters.

Sea-Lyon 65 takes its place as the head of an illustrious family of Sea-Lyon runabouts priced at \$2,975 to \$30,000. Other types are described on pages 134, 135 and 267 of this issue. Let us demonstrate one of these boats for you.

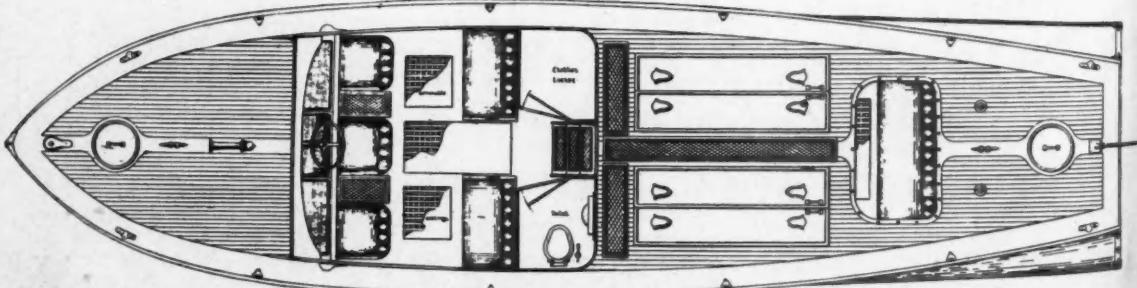
*Call at our show rooms, or phone for an appointment*

**HOWARD W. LYON**  
INCORPORATED

**HOTEL BARCLAY** 532 Lexington Avenue (at 49th Street) **NEW YORK**

Telephone: Vanderbilt 4445-4446 Plant and Service Station: City Island 1645-1646

**The only runabouts with complete plant and service facilities in New York**



*Sea-Lyon 65, a 35' x 9' cruising express runabout and commuter.*



Commodore A. A. Schantz and Geo. Harrison Phelps make the presentation of the Lipton Trophy to Commodore Gar Wood for the fastest lap in the Harmsworth Trophy Race last September

APRIL, 1929

Vol. XLIII, No. 4

# MOTOR BOATING

FIFTY-SEVENTH STREET  
AT EIGHTH AVENUE  
NEW YORK, N. Y.

Edited by

CHARLES F. CHAPMAN

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CALENDAR OF COMING RACING EVENTS AND SHOWS ON PAGE 204

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# MOTOR YACHTS OF 1929

**C**RUISING this summer on Long Island Sound, as well as the Maine Coast and the Great Lakes, will be many new yachts of various sizes. Boat builders and designers have been busy since last fall getting ready the modern boats which will grace the waterways of this country during 1929.

HENRY J. GIELOW

Prominent among these new boats will be *Wanderer* which is now nearing completion at the Lawley Plant in Boston from Gielow designs for George Whitney of New York. She is 115 feet in length, has a 21 foot beam and 7 foot six inch draft, and is powered with a pair of 300 h.p. Bessemer diesel engines which will give her a speed in excess of 15 miles. In the owner's quarters there will be six staterooms, four bathrooms below deck, while on the main deck will be a large dining salon, a large living room and an exceptionally fine owner's deck stateroom with private bath. Another boat from the Lawley Yard is *Wayfarer*, a 104 foot twin screw gasoline powered craft which is being built for Winthrop W. Aldrich of New York. With a speed of 20 miles she will be an innovation in this type of boat, presenting a full cruising type with commuter requirements as to speed. *Comoco*, another Gielow design is a 155 foot twin screw steel Bessemer powered diesel yacht for Ross W. Judson of Detroit. She will be equipped with all modern devices such as Gyro Pilot and Gyro Compass and will have an exceptionally fine cabin arrangement. She embodies marvelous seakeeping qualities with absolute smoothness, quietness and freedom from vibration.

A yacht which will undoubtedly attract much attention is *Migrant*, a 225 foot three masted fore and aft Bessemer diesel auxiliary schooner yacht for Carl Tucker of New York. She is built and classed to Lloyd's 100 A-1 plus, of steel, and is the largest auxiliary schooner yacht built in America. At the Bath Iron Works, Maine, *Hi-Esmaro* a new 267 foot Bessemer powered diesel yacht is nearing completion for H. E. Manville. She is to make a tour of the world, dropping at Sweden where Royalty will be entertained in honor of Countess Bernadotte, Mr. Manville's daughter. This craft is one of the most notable to make an appearance this summer and many novel features have been worked into this design for the owner's comfort and to make her most livable under all conditions at sea. *Vanda*, a 240 foot twin screw

diesel yacht is also under construction at the Bath Iron Works as is a new 350 foot twin screw turbo electric, oil fired steam yacht which is expected to mark an epic in yachting history in America and unquestionably will be the forerunner of many yachts of this same general type.

COX AND STEVENS AND JOHN H. WELLS

Messrs. Cox and Stevens, Inc. and John H. Wells, Inc. have recently placed contracts for four large diesel yachts designed by them, and to be built under their specifications. These yachts are all for prominent automobile executives and all equipped with machinery supplied by the Winton Engine Company. They are practically identical as far as dimensions and appearance are concerned two being for Alfred P. Sloan, President and Fred J. Fisher, an executive of the General Motors Corporation, and a third for a prominent member of the automobile industry whose name is not disclosed. These vessels are to be 236 feet long and of the clipper bow type with continuous sheer from stem to stern. They will be powered with two 1100 h.p. Winton diesel engines and equipped with every device which aids navigation, as well as everything to provide comfort and luxury for the owner and his guests. These three boats are being built at the yards of Pusey & Jones, Wilmington, Delaware.

Charles F. Kettering is the owner of the fourth yacht, which will be equipped with not only every known comfort for the owner and his guests, but will as well, be practically a floating laboratory. This is different in type, having a plumb stem and a counter stern and will be 170 feet in length. The engine room will be the most completely equipped of any yacht that has been constructed and will include every known device for mechanical operation and control of the ship. The contract for Mr. Kettering's yacht has been placed with the Defoe Boat and Motor Works, Bay City, Michigan.

LUDERS MARINE CONSTRUCTION CO.

Two 72 foot fast express cruisers are under construction at the plant of the Luders Co. at Stamford, Connecticut, one of which is for Walter Sachs to be called *You'll Do II* and the other for Edward Plaut, Pres. of Lehn & Fink, to be known as *Eepee*. These boats are to be powered with a pair of Sterling motors and will have a cruising speed

of better than 22 miles. A third boat, similar in construction, is under way for Thomas C. Eastman of New York. This craft will be equipped with a pair of Wright Typhoon motors and should make close to 32 miles per hour. *Robador*, a new 105 foot craft for Commodore Robert Law will be the last word in every respect and is built with a stream line motif. *Luders* is also building a Sterling powered 90 footer for William Dewey Loucks of New York, a 46 foot commuter powered with two Kermath motors for Pratt of the Standard Oil Company and a 40 foot open commuter for Geraldyn Redmond which is to be powered with a Wright Typhoon motor and for which a speed of 50 miles per hour is promised.

THOMAS D. BOWES

In the draughting room of Thomas D. Bowes of Philadelphia, plans for several large boats are underway. An 85 foot, 23 mile per hour, diesel cruiser powered with Treiber diesel engines is under construction at the Salisbury Shipbuilding Company. At the same builders a 98 foot 24 mile Treiber diesel powered cruiser, will be built for a Chicago yachtsman and at the Defoe Boat and Motor Works a 149 foot boat for a Philadelphia yachtsman is to have a speed of more than 20 miles.

ELDREDGE-McINNIS, INC.

At the yard of F. D. Lawley, Inc., Quincy, Mass. a 75 foot express cruiser is underway for R. L. Skofield of New York City. This is to be powered with two 350 h.p. Winton motors and is similar to Ballkim and Seyon built last year. At the Nevins Shipyard a 72' twin screw express cruiser is under construction for George H. Townsend to be powered with two 350 h.p. Winton motors and at B. F. Wood, Inc., a 48' Red Wing powered cruiser for Robert C. Ream. A 61' twinscrew power cruiser is building at the Defoe Boat & Motor Works for Carl Bonbright of Flint, Michigan, and is to be powered with two six cylinder Sterling Chevron motors.

J. MURRAY WATTS

For immediate construction, J. Murray Watts, has just let the contract for a 46 foot cutter yacht called *Windrush* to the Lower Bank Boat Works of Lower Bank, N. J. This boat is for J. S. Wilford of Philadelphia. They have also plans for an 83 foot Diesel engine yacht for Karl Nibecker, of Chicago, contract for which will probably be awarded soon.

APRIL, 1929

# TODD

## SPRING RECONDITIONING *and* REPAIR SERVICE *at* TEBO YACHT BASIN

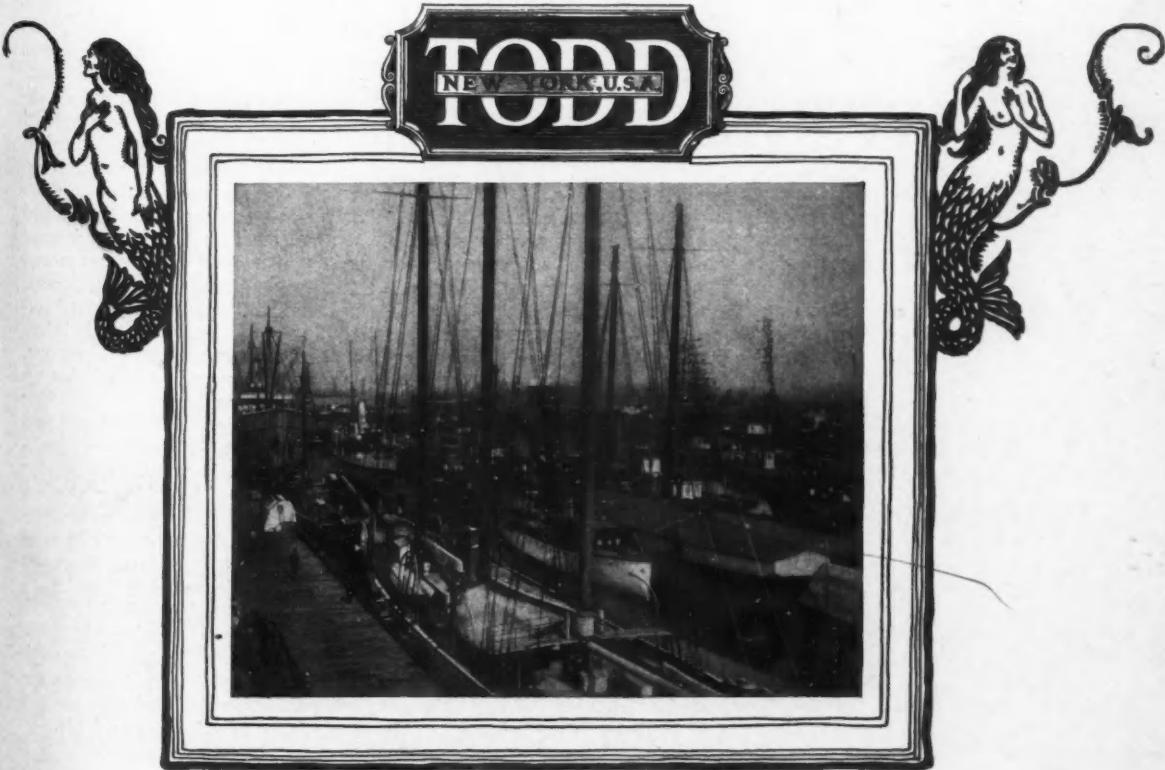
THE advance of late winter into early spring makes pertinent the service of the Todd Corporation's Tebo Yacht Basin which offers to discriminating yachtsmen and sportsmen an incomparable service for large and small yachts in repair and reconditioning.

The Todd reputation for prompt delivery

on contract, or agreed, time having been built upon its exceptional facilities and experienced personnel, and the convenient location of the Tebo Basin for owners supervision itself within a few minutes of lower Manhattan makes this yard of exceptional interest to yachtsmen on the North Atlantic Seaboard.

TODD DRY DOCK, ENGINEERING & REPAIR CORPORATION  
Foot of 23rd Street, Brooklyn, New York

PLANT OF  
TODD SHIPYARDS CORPORATION  
25 Broadway, New York



Mention MOTOR BOATING, 57th St. at Eighth Ave., New York

# KEEPING TRACK OF THE BOATS



THE Act of Congress of June 7, 1918 is the famous motor boat numbering act, entitled "To require numbering and recording of undocumented vessels," which has been enforced since that time by our national government. Under the terms of the act every undocumented vessel operated in whole or in part by machinery, owned in the United States and found on the navigable waters thereof, must be registered with the Federal government. (Boats of less than 16 feet in length, equipped with an outboard motor, do not have to be numbered. Boats of any length on other than Federal waterways, including State waters, do not have to be numbered.)

This registration of craft is required to be made in the customhouse of the district in which the vessel is owned and a record thereof must be kept in the customhouse of the district in which the owner or managing owner of the registered vessel resides. At the time of such registration the collector of customs with whom the ownership of the vessel is recorded awards to the craft a number which must be painted upon or attached, in a prescribed manner, to each bow of the boat. The act provides suitable penalties to be imposed upon such owners as fail to procure and carry such a number on their craft. Experience derived from the enforcement of the act has demonstrated that these penalties are sufficient in practice to guarantee compliance with the requirements of the act to a very satisfactory degree.

At the time that the numbering act was approved and enacted into law by the assembled United States Senate and House of Representatives the unforgettable world conflagration was at its height. The advent of the United States into that war made it a matter of stern necessity for our government to inquire into and to be fully informed as to the ownership and uses of the thousands of small motor boats which daily were ploughing their way along our coastlines. Hence the passage of the act was in the nature of a war measure to prevent as completely as possible the conceivable, and in some cases actual, use of these small craft for anti-

allied and certainly un-American purposes.

The act was designed to bring under the constant scrutiny and immediate control of the Federal government all of the vast fleet of undocumented vessels which hitherto, by virtue of their being required to possess neither a document nor a license, had been permitted to navigate at will and without any declar-

board craft manufactured and placed into service began to create that type of vessel a class that was destined soon to take its place as a major and important class of pleasure motor boat. The dramatic story of the totally unprecedented growth of the outboards within the past two to three years is known to us all. Nobody of even casual interest in the motor boating sport can possibly have kept from recognizing the powerful hold which the outboard motor boat has come to possess upon both confirmed and casual marine sportsmen everywhere. As a result we today spontaneously think of pleasure motor boats as being made up of three main groups: documented motor boats, numbered motor boats and outboard motor boats.

Each day we find ourselves further beset by signs cropping up on all sides to testify to the rapidly multiplying interest in the motor boating sport. More and larger boating clubs which are organized each year; staggering attendances at annual motor boat shows which rival in size and in magnificence the great automobile shows; the presence at regattas and races of an ever-growing representation of a hugely interested non-boating public; periodic announcements of the building or christening of a palatial craft which surpasses all previous aspirations of the boat manufacturers; increasing use of the popular advertising mediums by boat builders and dealers; all these and many other phenomena are present to testify to the speed and completeness with which the general public is becoming so generally boat-minded.

The veteran yachtsman, however, is not entirely satisfied to judge the growth of his adopted sport by these general signs of the sport's expanding prosperity. Though these prevalent signs indicate with persuasion and an undeniable fervor the upward trend of the motor boat toward universal popularity, the critical student of the sport wants more tangible evidence upon which to base his estimation of the sport's progress. Such an observer, insofar as he can, wishes to eliminate his natural prejudice and to supplant general indications of an upward

(Continued on page 108)

## HOW MANY BOATS ARE THERE?

WHILE there is no certain way of counting the actual number of boats which dot the numerous waterways of the United States, it is conservatively estimated that there are about three times as many boats on inland waters as there are on Federal waters tributary to the oceans. The total of registered and documented boats under Federal control is about 250,000 and the vastly greater inland waterways will readily account for another 750,000, making a total of more than 1,000,000 motor boats. This figure will not include the thousands of outboard boats added to the fleets of recent years which are estimated to be between 300,000 and 400,000.

The totals in several groups appear about as follows:

Seaging Yachts .....	853
Documented Yachts .....	1,723
Numbered Motorboats...	230,582
Commercial Motor Boats	22,848
Unrecorded boats on inland waterways ...	750,000
Outboard Motor Boats	350,000
GRAND TOTAL.....	1,356,006

ation of ownership. It was deemed proper at that time to exclude from the jurisdiction of the act two special classes of undocumented vessels. These were, firstly, all public vessels and, secondly, vessels not exceeding 16 feet in length measured from end to end over the deck excluding sheer, temporarily equipped with detachable motors. At that time the total number of public vessels in operation was very small. Small, too, was the aggregate number of outboard-driven motor boats in use at the time so that, excluding these two small classes of motor-driven vessels, the act indirectly divided pleasure motor boats into two groups—documented motor boats and numbered motor boats.

With the termination of the war and the passing of one year after another into oblivion, however, the annual increases in the number of out-



## ***“That’s the LUDERS 42!”***

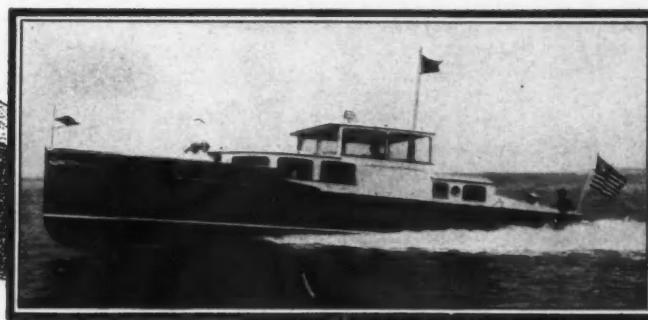
**H**ERE she comes! "There she goes!" A glimpse of a powerful, glistening hull, with fair women and happy men at luxurious ease within the cockpit, a flash of white spray with a bright ensign shimmering through it . . . then merely a white ribbon wake, and a deep, restless longing.

Realize that longing! Own a Luders 42! This year tour the uncrowded *water highways*. Turn business into pleasure by commuting in your own cabin runabout.

With its popularity based on a distinguished performance as well as a distinguished appearance the Luders 42 is found in increasing numbers off our fashionable yacht club floats. It may be called a custom-built boat on a standardized plan. The success of the design and the name Luders guarantee you satisfaction; your own selection of the furnishings and decorations gives expression to your individual taste.

You can still secure a 42 for the coming season if you act promptly. Write or phone for complete details.

**LUDERS MARINE CONSTRUCTION CO.  
STAMFORD, CONN.**



Mention MOTOR BOATING, 57th St. at Eighth Ave., New York

# THE FEMININE VIEW POINT

**N**OW, Mr. Newburgh, of New York, let me give you a truly practical answer. I don't know whether you asked your question because you wanted an answer, or because you coveted a new pair of oars, or a Bryant and Berry Combination Post Light and Flag Pole Socket, or two quarts of Balubricote bottom coat, or credit on a Pastor Stop Watch—but anyway, I'm going to answer it. And when I say a practical answer, I mean practical from the feminine viewpoint. No bluff, and no fancy writing. You won't hear any talk from me about crank shafts and piston rods and tuning up the gears and grinding the lenses—or whatever it is they grind. I'm the wife of an old yachtsman, and I know all that talk. I have heard it flow from Christmas to Easter—and then comes June, you taxi two hundred miles to the water for a week-end cruise, and find the old boat curtseying prettily in the river with three new coats of paint, and not a kick in her engine—dead as a dodo.

Mr. Newburgh, if you are a born mechanic and just naturally *love* grease under your finger nails, or if you have a grown son that works in a garage in vacation time, you can let this advice slip. But if you are like most cruiser husbands, and spend your days adding up figures (in a large way, of course) or swapping contracts and signing checks, or battering knowledge into the young and the not-so-young—let me, a mere female, listed among the voters as housewife, explain to you the "overhauling and adjusting" (particularly the adjusting) "necessary to put the engine in good condition for next year."

The process should begin in September, on the day you leave *Perdita II*, darling of your heart, in the tender care of the salty, tacturn gentlewoman up the Creek, or in the south Cove, or out at the Point, as the case may be. You say, "Well, goodby, Captain, I know she's all right here with you. Sometime this winter when you've got nothing else to do, you might put in those shelves forward, and replace those rotted planks in the bilge and tighten up the after starboard port-lights. And her engine needs overhauling, but I suppose that can wait till spring. I've told you everything the engine needs, but here's a list, just in case your memory is as short as mine. So long, Captain, see you next June!"

The captain accepts the list, looks as if he would spit on it, decides to save that demonstration for something more

*Mrs. Ezra Bowen Offers a Practical Solution to a Prize Contest Question Submitted by W. B. M., Newburgh, N. Y., Which Was Published in March*

worthy, shifts his quid to the left cheek, puts the list in his trousers' pocket, and nods farewell.

That is the first step in adjusting. Observe, Mr. Newburgh, this is a problem of human adjustment, not mechanical. A mistake you men make so often; you ignore the personal in favor of the material, whereas we women could tell you, if you would only listen—

January comes along, with the customary deceptive thaw. The sun shines, the earth smells wet and spring-like; you sniff the air and exclaim, "Boy—nice lazy southwest breeze! Carry us down the river, eh, wife?" This is the moment to go indoors and write your first letter:

"Dear Captain Ed:

"You remember our little talk about the engine on *Perdita II*. In case you or Charley has any spare time on your hands, I write to remind you the valves need grinding—" (Here, Mr. Newburgh, you may be as technical as you please.) "I know you have a flock of yachts in your yard this year, so I hope you won't put me off until too late in the Spring.

"Hope you are having a good winter, that Mrs. Ed's lumbago hasn't been bothering her, and the heavy weather has not interfered with the lobstering.

"Cordially—"

If *Perdita II* lies south of Cape Ann, you may substitute sorghum moss for lobsters—and that reminds me: locality plays a large part in this game of human adjustment and overhauling (the overhauling comes later). If *Perdita* is in Portland, Maine, you write Cap'n. Davidson not to let Noah (Noah is his son, and a first-rate mechanic)—not to let Noah rip the engine to pieces the way he did last year—you can't afford quite such a thorough job this time. Business with you isn't so brisk. In Maine they are terrors for thoroughness; to a New England boat builder you need write only one letter. But if your yacht is languishing up the Delaware River, or over at West Creek in Jersey, or down at Annapolis with Henny Heller—

mark my words! Write that letter, with tactful variations, once every month until June. And then, don't expect to travel shoreward and find the engine ready. Oh, no! Two weeks before your first cruise, go to West Creek and tell the brothers Crammer, or Sprague, or Price, that you've dropped in on your way to Atlantic City to see what has been done to the engine.

"Well, she ain't quite ready, Doc," begins the Captain, glibly enough—"Had to send to the city for them parts—"

"Let's just step aboard," you say. Reluctantly, the salty gentleman follows you.

Nothing has been done to the engine. Just nothing at all. She has not been touched. Since last September, no human hand has defiled her.

And now, Mr. Newburgh, begins the overhauling—verbal overhauling, eloquent, pungent, terse, repeated, ejaculatory, hot. The air sizzles with words. I could write it all down, because I know it by heart, but I am the wife of a college professor and the mother of twins, and they call me a lady, so I omit the words. Besides, I think you know them. All yachtmen do. You keep right on talking for ten minutes, and then you leap off the boat—your wife leaping feebly after you—and jump in your car and slam the door and start the motor. And now—mark this—now you turn to the Captain, who slouches nearby, not shamefaced, but bewildered, and you smile—actually smile, and say, "So long, Cap'n, see you one week from today.—Saturday morning. Want to catch the ebb tide before noon."

This is a lie. You are not coming next week, but the week after. It is a good lie, though, because it works. That day fortnight you climb aboard *Perdita II*, you and your wife (I hope there is a Mrs. N., because wives do love cruising). Stowing the dunnage in the cabin you slip into the old khaki pants and the battered, salty old hat that fits so snugly, and standing at the wheel you press the button and push in the clutch—and she jumps right ahead! Yes sir, she purrs like a giant kitten. You round the bend and wave to Captain Ed, grinning on the bank, and you love everything and everybody, *Perdita II*, the engine, your wife—even Cap'n Ed—

Now, Mr. Newburgh, of New York, have I answered your question?

Mrs. Ezra Bowen,  
Easton, Pa.



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Courtesy Truman Newberry

## THE SOVEREIGN OF THE SEAS

From a Painting by Charles A. Patterson

Reprinted from Country Life

APRIL

# MOTOR BOATING

1929



Photographs by M. Rosenfeld

## WE'RE GOING OVERBOARD SOON

*Real Boatmen Find as Much Fun and Recreation in the Work of Spring Overhauling as They Do in the Use of Their Boat During the Summer*

By F. W. HORENBURGER

AT THE first signs of fine weather all boatmen immediately begin to think of their treasured craft which has been hibernating through the cold months of the winter. Springtime activities are everywhere in evidence, and the boat yards are reflecting the good weather in the industry which is shown in the efforts to restore the boats to their nearly new condition. Those yachtsmen who are fortunate enough to be able to spend the coldest winter months in the sunshine of Florida have returned with a marvelous coat of tan which will be the envy of those who are compelled to stay at home. It will take many months of summer before we can

hope to match their color. While all boating activity, more particularly pleasure boating, is suspended during the cold winter months there are many who are fond of early spring fishing, and who make a decided effort to get their boats back into service as early as possible. For most of us the early part of May is usually sufficiently early to get a start on the new season. By this time the danger of storms and bad weather is over so that the boat can be safely launched and entrusted to its moorings.

The usual result of the winter lay up period is a considerable accumulation of dust and dirt and a more or less general disorder throughout the boat.



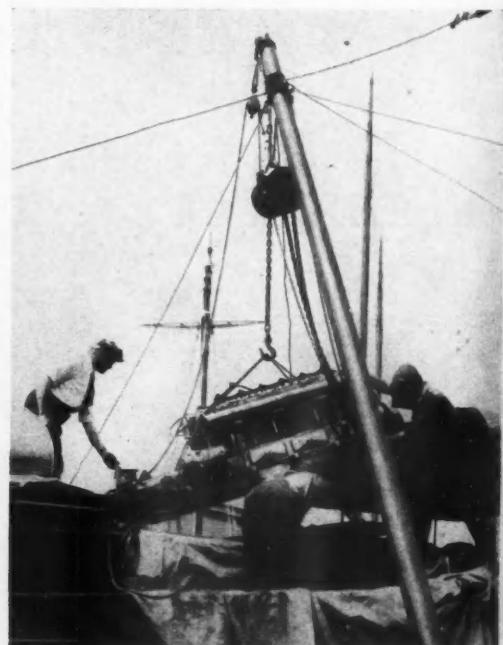
*Smoothing off the seams in the boat's hull should be done carefully so that the joint between the planks will not be visible after the paint is applied*

After all, the spring outfitting consists of nothing more or less than a thorough house cleaning and inspection together with such repairs as are found to be necessary as a result of this examination. There are very few yachtsmen who do not take sufficient pride in their ownership of a boat as not to want it to appear at its best when it goes backward. For these the work involved in cleaning and repainting is regarded as equally as much fun and recreation as is the use of the boat later in the season. All clubs and boat yards find the glad gathering of amateur mechanics busily at work to which they are not entirely accustomed, but which they relish just the same. Since most men are compelled by necessity to spend their week at their various jobs, they are compelled to do their boat outfitting over the weekend periods. Since the weather is an important factor in the proper or improper painting of a boat, it is quite essential that the tasks to be done be analyzed in such a way as to divide them into fair weather and bad weather tasks. In order to get the best results from the labor involved in applying new coats of paint and varnish it is quite important that this form of work be done only on clear dry days with a high barometer. At best the temperatures are not likely to be entirely suitable for work of this kind and the painter will be handicapped in this direction. Paints which are applied as early in the day as reasonably possible will have just that much more opportunity to set and dry properly before the moisture and cold of the evening interferes with this process.

The most methodical and precise of the amateur boatmen have been thinking of the many tasks to be done for many months of the winter. In fact he has made many visits to his craft and may even have completed all engine repair work during the colder parts of the earlier spring. All mechanical repairs can be done just as readily when the weather is cold as

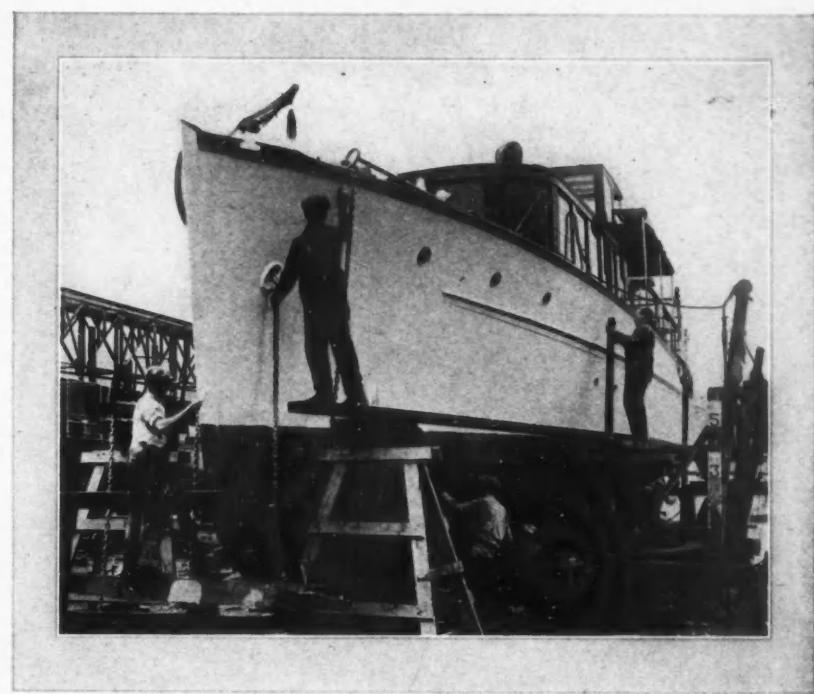
later on, leaving only the outdoor painting until the last when the chances of better weather are more certain and also so the boat will be moved out of the dust and grime of the yard as soon after the final coat as possible. Another thought which should be borne in mind is to undertake all jobs which are likely to be dirty or messy before the painting is begun. It would seem useless to refinish an engine compartment and then proceed to take the engine down in order to clean the carbon or grind the valves. Another messy job is the cleaning out of the bilge. Some yachtsmen are sufficiently proud of their housekeeping ability to keep this portion of their boats clean and shipshape at all times. Man, being what he is, however, is naturally inclined to neglect this part of the boat and it will usually be

found that a good thorough cleaning will not be out of order in the spring. This is a job which calls for much scrubbing and the use of liberal quantities of water and should be done sufficiently far in advance in order to permit the boat structure to dry out well before new paint can be applied.



*Big engines can best be overhauled by removing them from the hull and doing the work in a suitable shop where machine tools are available*

We might assume that we are about to begin the overhauling of a typical modern motor boat and describe what is necessary in order to put it into first class condition again. It will probably be found that the tight closing in under the winter canvas cover has caused a general condition of dampness and coldness. The first task should be the removal of as much of the cover as necessary in order to permit sunshine and fresh air to do their best to remove this dampness. For the first few days there will probably be enough to keep the boatman busy without venturing to do any paint work. There are for example, ample possibilities for the industrious man in scrubbing down the interior particularly in the galley and washrooms where soapy water may have been spattered on the white woodwork. This does not necessarily call for repainting and a pail of warm water with some of the better soap powders is all that will be necessary to clean up this portion of the boat. Any bright work in and around the galley and elsewhere inside the hull, where it is subject to wear and tear can be readily revarnished



*The painting of a large boat hull is a sufficiently laborious task to make it necessary for several men to work at it continuously*

with a coat or two of good varnish. It will depend entirely on the condition of the woodwork as to how many coats will be necessary. Where it is badly chipped and abraded it may be necessary to remove the old varnish entirely which can be done by the use of any of the prepared varnish removal compounds on the market and this should be followed by a very thorough sandpapering to produce a smooth surface on the wood. If this happens to be mahogany, it will then be necessary to stain it again to match the rest of the interior finish. This stain is also a prepared product easily obtainable. It is applied with a brush in a manner similar to varnish and before it is dry it is rubbed and distributed over the surface of the wood by means of a rag so as to produce a uniform color throughout. After this has dried, the first coat of varnish can be applied and this should be followed by two more coats with a gentle sandpapering between each coat. Any white work on the inside which does not appear suitable after washing down may also require repainting. Most people prefer to use yacht enamels on the interior of the boat. These have the advantage of drying with a hard finish which is easily kept clean by an occasional wiping with a damp cloth. Where woodworks have been painted and a new coat is applied merely to freshen up the work, it will generally be found that one coat is sufficient to restore it properly. If the color scheme is to be changed it may require several coats before a uniformly smooth coat is secured.

Before the interior cabin spaces can be considered complete, it may be found necessary to freshen up the curtains, carpets and cushions. These will all require special treatment depending on the nature of the fabrics and it might be desirable to enlist the aid of friend wife in handling this phase of the work. Some materials will yield to washing by the ordinary processes while others may re-

*(Continued on page 116)*



*A new device for burning paint from boat hulls uses acetylene gas in a special burner. It provides a better flame than the old gasoline torch*



*The commodious dining room in the steel deck house on the main deck forward*

M. Rosenfeld

## CORONET, A GRACEFUL CLIPPER YACHT

*Irving T. Bush To Use His New Ship On a  
Round the World Cruise*

THE tendency among designers to revert to the graceful clipper bow of the early steam yacht in the construction of the more modern diesel craft is again brought out strongly in the new yacht Coronet. This boat was recently completed from designs by Cox and Stevens for Irving T. Bush, a member of the New York Yacht Club. Coronet is an outstanding vessel of her type, being heavily and ruggedly built. She has an overall length of 181½ feet and a corresponding beam of 27 feet. The power plant installed consists of two solid injection diesel engines which develop 425 h.p. each and are able to drive the ship at thirteen knots. Provision has been made for sufficient fuel and water and stores to permit a cruise of 7000 miles before further supplies will be needed.

Comfort abounds in the latest mechanical equipment installed, including Diesel and electric driven air compressors, a large electric refrigerating plant, a hot water heating plant with radiators in all the living space, a forced ventilating system operated by electricity, electrically operated pumps for fire protection, bilge and sanitary purposes. In addition, the

craft has electrically operated boat hoists, deck winches and anchor handling equipment.

Every comfort for the guest is provided aboard the boat, which in addition to the library, lounge and dining salon, has a total of six large staterooms, each with a separate adjoining bath. Each stateroom is provided with overhead, as well as forced ventilation.

On the main deck, there is a continuous steel house with a commodious dining salon at the forward end. A passageway connects with the living room at the after end, which comes directly onto the after deck. Midway is located the owner's lounge or library.

The full length sweep of the bridge deck is a feature of the boat, providing an unusually large promenade space for the owner and his guests. On this deck are two steel deck houses, the forward one, containing pilot house, chart room, captain's room and bath; the after house, containing wireless rooms with quarters for the radio operator. Quarters for the crew, consisting of twenty men, are located in the bow of the vessel, there being an upper and lower forecastle.

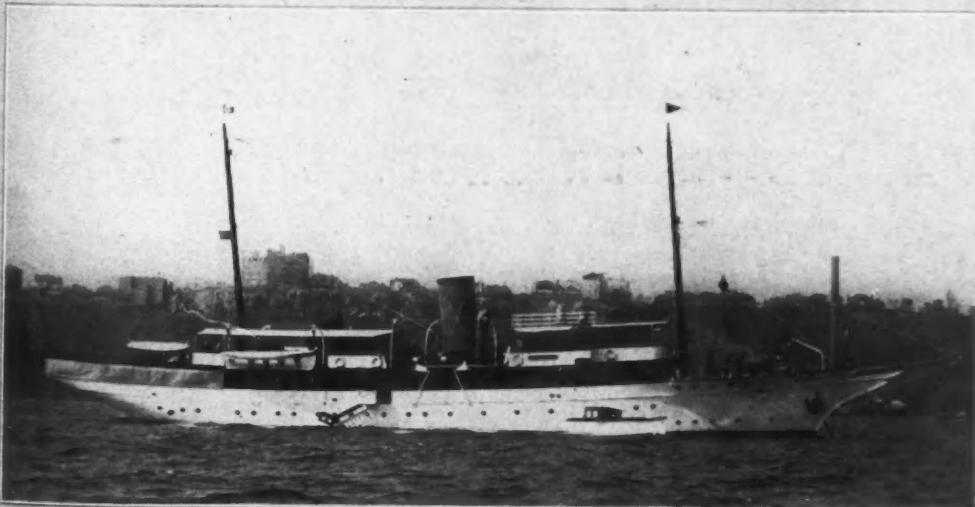
The interior design and finish is conservative throughout following the wishes of the owner.

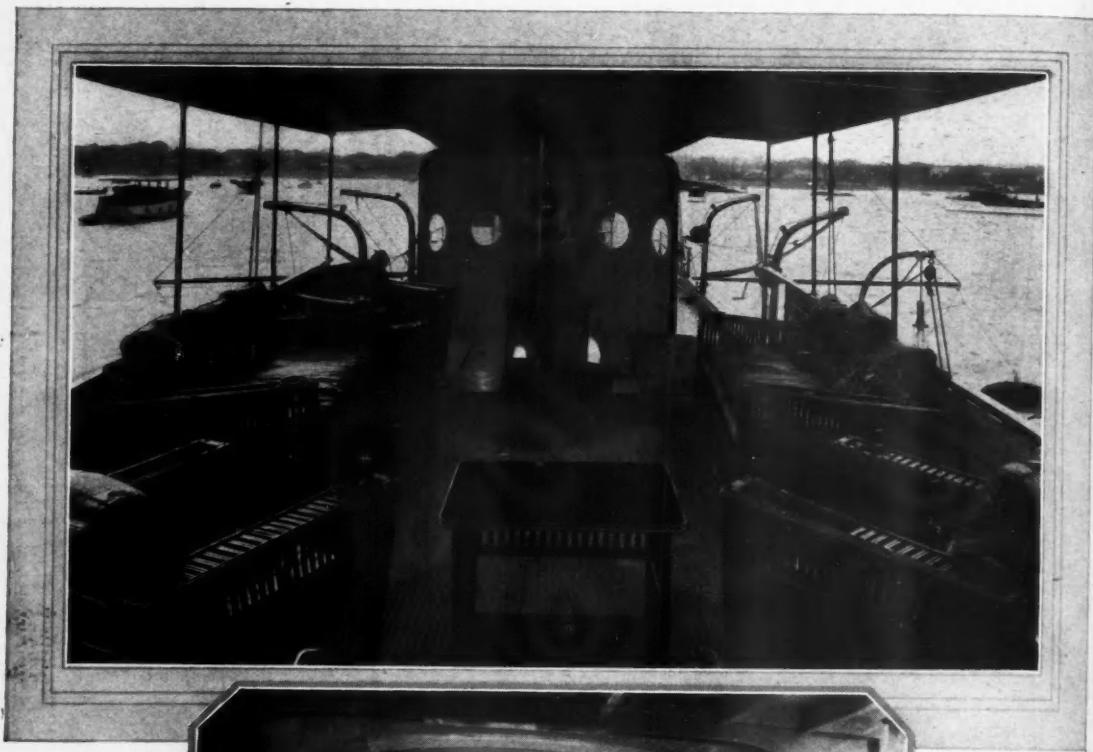


Edwin Levick

*Coronet*, an outstanding vessel of her type, heavily built of steel with an overall length of 186 feet. She carries two 425 h. p. diesel engines and sufficient fuel and stores for a 7,000 mile cruise

Midships in the deck house is the owner's lounge or library. The design and finish of the interiors is conservative throughout following the owner's wishes. The walls are panelled with walnut trim in the library





Edwin Levick



*The unobstructed after deck, 28 feet long, on which the many easy chairs are placed*

*The double stateroom in the stern of the boat. In addition there are two single and the owner's stateroom*

## SIVA, AN ULTRA MODERN YACHT

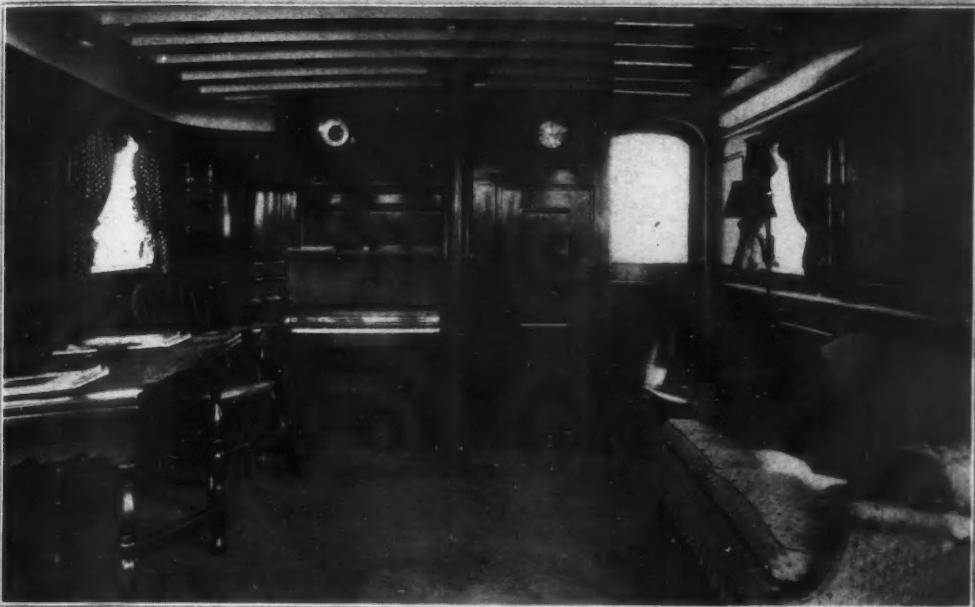
*A Distinctive Craft of Unique Design and Construction*

*Destined to Be the Forerunner of a New Type*

**S**IVA was built for Donald F. Tripp of New York City, by Britt Brothers of West Lynn, Mass., from designs by L. Francis Herreshoff. She is a 91-foot motor cruiser with 15 feet 6 inches beam and draft of about 4 feet 10 inches. She embodies many novel features and was built to be as fast as possible, consistent with good sea qualities. This necessitated fine lines and a cruiser stern. She carries two masts for sail. The foremast stands about 36 feet above deck and carries two jibs.

Naturally for speed, lightness was required and for the sea strength. Therefore, the Herreshoff web frame and longitudinal construction was used, built on straight deep keel partly of cast iron. It is interesting to note that when the boat was launched she had but one support under each end of the keel and showed no spring whatsoever. She is double planked; the inner being diagonal and the outer horizontal mahogany set in glue.

The power plant consists of two 265 h. p. Wintons



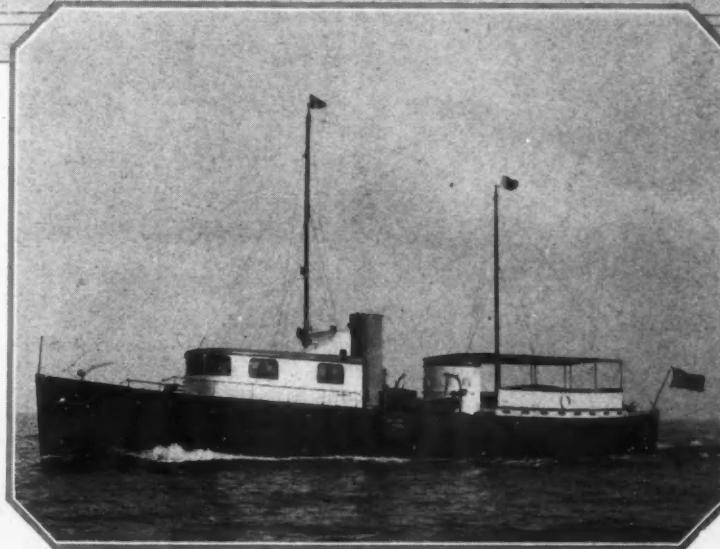
*Forward the deck house serves as a dining room and lounge. The bridge is above to give a clear view all around*

turning 1200 r.p.m. These give the boat a cruising speed of about 16 m.p.h. and maximum of 19  $\frac{1}{2}$  m.p.h. The electrical equipment is a 5 kw Winton set 110 volt, with Edison batteries.

The work deck is about 20 inches below a bulwark at the stern. This affords considerable protection. For handling, two electric winches are provided; one forward and one aft.

The deck house is 18 by 11 feet and serves as dining room and lounge. The bridge is set into the after end of the deck house so as to give clear view of the stern. Aft of the deck house is a fiddley deck over the engine room. On this the stack is set. The stack houses the main engine exhaust, generator exhaust, also galley exhaust and smoke pipe for the heating system.

As there is no rail on the middle deck, the two boats may be carried in the davits or set directly on deck. The small boat davits are of laminated wood. The small boat is of the same construction as the large boat,



*Siva is 91 feet long and was built for Donald F. Tripp by Britt Brothers. She carries two Winton engines*

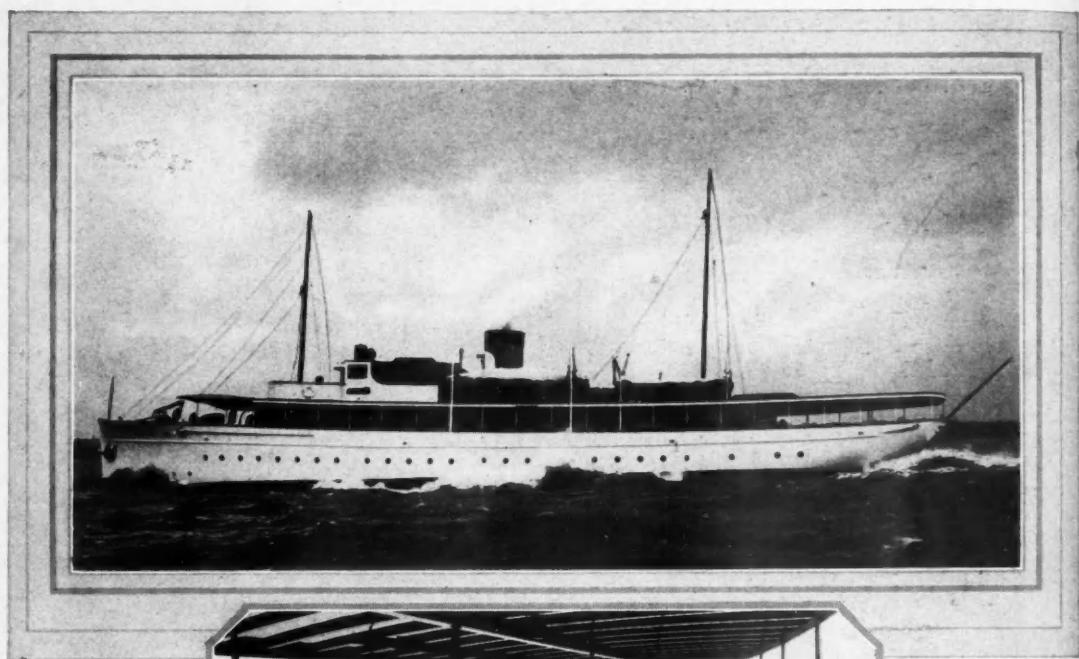
and while she is 16 feet long and has 30 h.p. driving her 15 m.p.h. she weighs only 900 pounds.

The hull is divided into six watertight compartments. She has a built-in Lux system

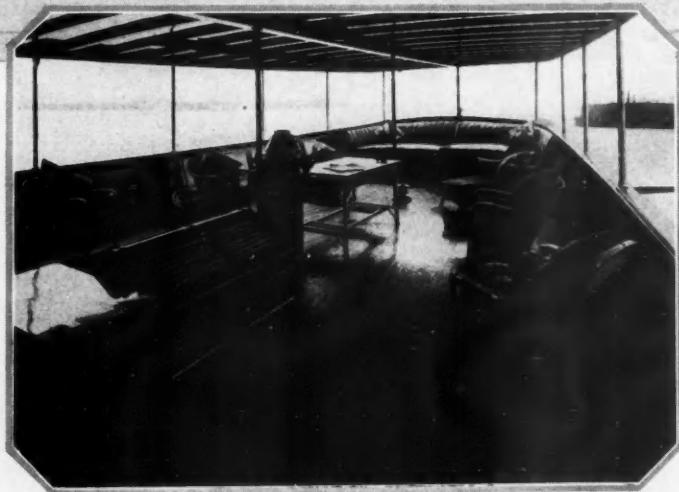
for fire control. She is heated by an Arcola hot water furnace, with radiators in every room.

Way forward is the forepeak for storage of sails and deck gear. Then aft of the collision bulkhead comes the crew's wash room. Then the forecastle. Next is quite a large galley 8 by 12 feet with Propane stove, hot water heater, large refrigerator cooled by a Frigidaire machine. Between the galley and the engine room there are staterooms to port and starboard, one for Captain and one for Chief Engineer.

The engine room is midships and next aft comes the owner's stateroom which is about 8 by 14 feet. This is most attractively fitted up and trimmed in teak. Aft of this there are two single and one double staterooms and two bathrooms. (Cont'd on p. 112)



M. Rosenfeld



*Memory III is 142 feet in length, constructed entirely of steel and a most able vessel throughout*

*The after deck is roomy and protected from bad weather ahead by doors and windows at the forward end*

## THE NEW DIESEL MEMORY III

*Fine Looking Twin-Screw Diesel Yacht Built at Defoe Boat and Motor Works for A. E. Fitkin of New York*

ONE of the ablest of the twin-screw diesel yachts built during 1928 is Memory III owned by A. E. Fitkin of New York. Memory was built from designs by Thomas D. Bowes in the plant of the Defoe Boat and Motor Works at Bay City, Michigan. Particular thought has been given to the appearance, and the beautiful sheer line of the boat makes her pleasing to the eye and gives the appearance of a much larger vessel.

The construction of the vessel throughout is very heavy, and beyond the usual requirements. Steel has been extensively used with the main deckhouse, the wheelhouse, and the captain's quarters, constructed of this material, and then painted to represent teak wood.

The decks and deck joiner work throughout have been made of teak.

All interior accommodation arrangements have been well planned providing large and roomy quarters. Special attention has been given to outdoor quarters and the main deck aft provides protected space for a large party of guests. An additional observation deck has also been arranged on top of the deck house forward. The main saloon is exceptionally large and finished in waxed teak. An office for the owner has been arranged forward of this saloon with a smoking room close by. These are finished in polished walnut. The owner's staterooms are below with a stairway from the smoking room leading to them. There is



*The main deck saloon is very large and finished in waxed teak. Additional owner's quarters are adjacent*

another stairway from the after end of the saloon leading to the guests quarters below. The deckhouse contains also the radio room and a deck bathroom as part of the owner's suite. In the forward end of the deckhouse are found the galley, pantry and dining saloon which is finished in panelled polished mahogany with the furnishings and lighting fixtures of Sheraton design. An inside passageway connects the dining saloon and the main saloon aft.

Quarters for a crew of twelve have been arranged forward and large cold storage rooms are also located here with ample storage space to carry supplies for long journeys.

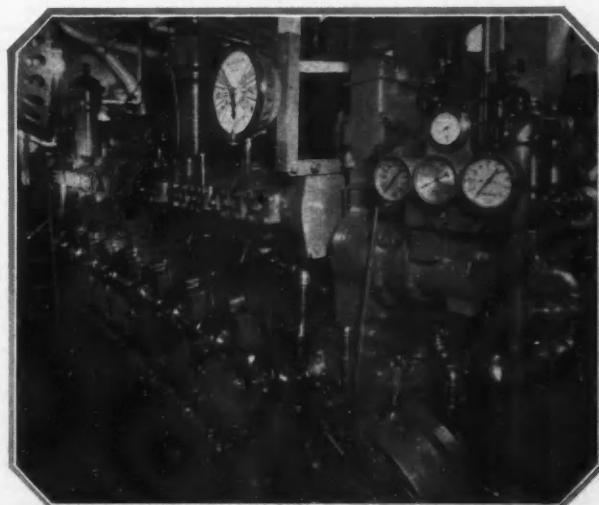
The machinery space is amidships and contains the two main engines which are eight cylinder Bessemer solid injection diesel engines with 11 by 14 inch bore and stroke. There are also three electric generating sets, two being of 20 kw. capacity driven by Colo diesel engines while a third is a 7½ kw. Winton gasoline engine set for emergency purposes. Edison batteries are provided to carry the load when the plants

are shut down and the entire engine room compartment and other parts of the ship are protected with the Lux fire protecting system.

An important item in protecting large engines of this kind from injury is the matter of keeping the lubricating oil and fuel free from foreign matter and a Sharpless Separator takes care of this problem easily. Refrigeration is provided by three separate Frigidaire units as needed. An important point in the installation is the use of the same fuel oil on many of the

auxiliaries. The galley range, the hot water heater, the main heating plant, and the generating sets all operate on the same fuel used by the main engines so that the fuel storage problem is much simplified.

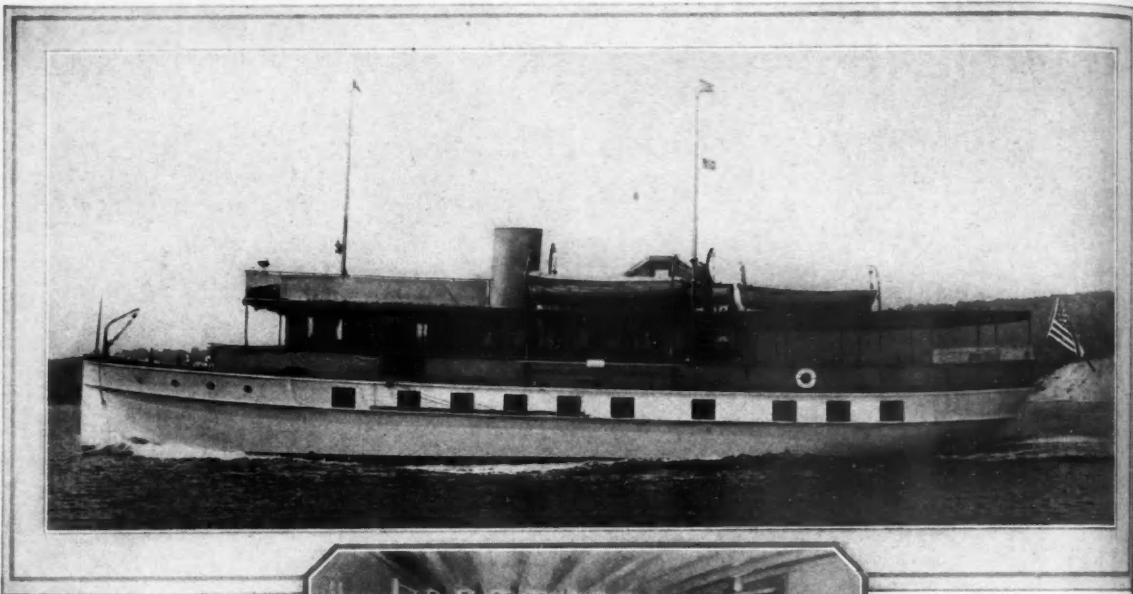
The owner's and guest's staterooms are all aft. The owner's room occupies the entire width of the ship and has a large tiled bath and a dressing room adjacent. There are also three double staterooms for guests, each with a bath, and a supply room for the steward. All rooms are supplied with natural ventilation.



*Two eight cylinder Bessemer diesels furnish the power and are supplemented by two Colo diesel generating sets for electrical supply*

# J. B. FORD'S HOUSEBOAT ROYONO

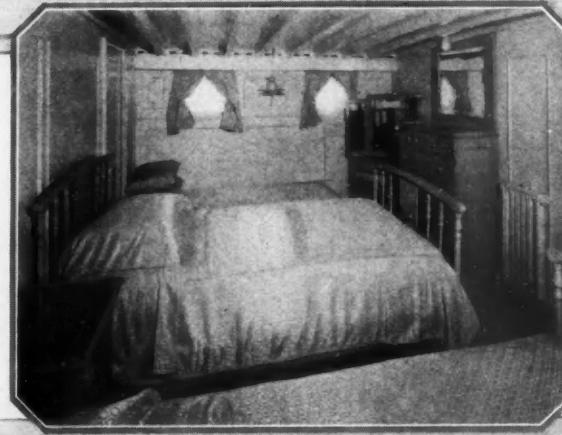
*Fine Example of Modern Houseboat Construction,  
Completed in New York Yard*



M. Rosenfeld

*Royono is a distinctive houseboat type, designed and built by the New York Yacht, Launch & Engine Company for John B. Ford of Detroit*

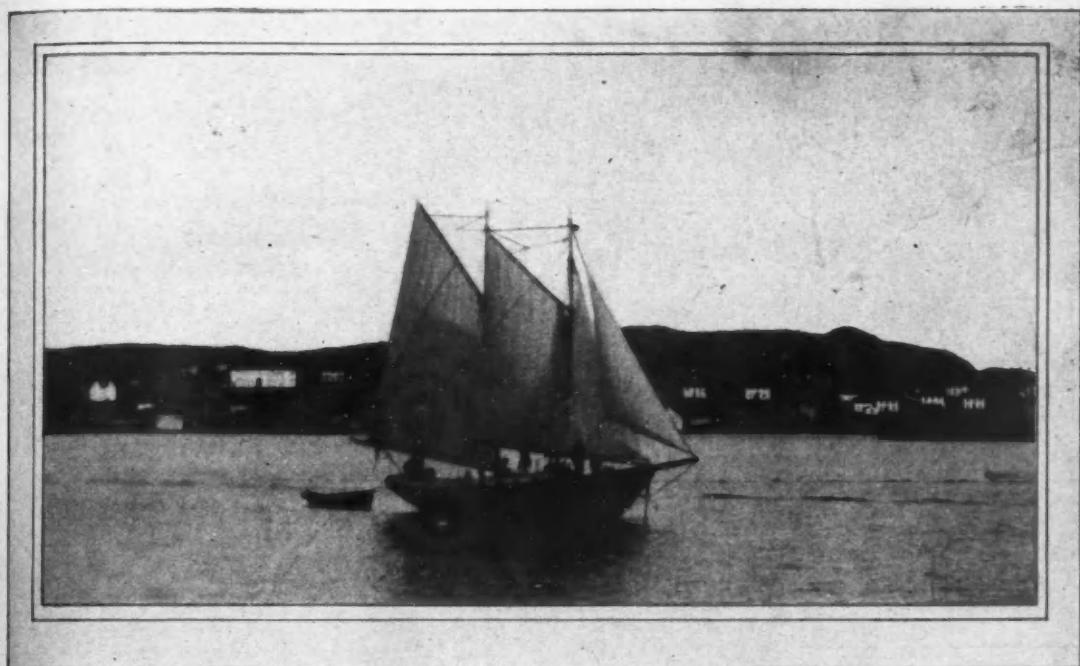
*The owner's stateroom below decks is done in white enamel and reflects a simplicity which is quite refreshing*



*The spacious deck house is very light as a result of the numerous windows, and altogether is a most cheerful and comfortable apartment*

*Royono is 87 feet long with an 18-foot beam and attains good speed with her two 6-cylinder 100 - h.p. 20th Century gasoline engines*





*Maybelle returning from her first sail with anchor about to be dropped, Twillingate Harbor, Newfoundland*

## TO TWILLINGATE FOR A BOAT

*A Novice Crew Journey Far From Home to Seek a Builder for  
Their Dream Ship*

By GORDON P. MANNING

### PART I

LAST summer I went to Newfoundland. This is a small country located somewhere east of Canada and somewhere north of Nova Scotia. Many have heard of it, but few have any idea where it is. I didn't until I went there. Why I went is a long story, so long in fact, that you will have to sit back in your chair and light your pipe in order to come through smiling. But it will interest you—especially those dreamers among you.

I have a love for boats. Certain boats take my eye. Ever since I acquired my first motor boat one idea had been persistent with me. I must have a sail boat. Motor boats were all right for lakes, but I wanted the ocean. Up until last summer I had only my dreams. But last summer my pocketbook said go ahead and I set out.

That there was such a country as Newfoundland did not enter my head as I made the pilgrimage to the boat builders. I had thought of it only as a point from which to start a Transatlantic hop. But as I made these rounds I learned one thing. In general, the farther north you go the better chance you have of getting full value for your money. I figured in my case I must have this full value or there would be no boat. In a small car, a friend and I circulated around to the different boat builders. By the time we had reached Nova Scotia in our travels we thought we were getting hot on the trail of the full values.

We were almost content. Then came a friend.

This friend came to us out of the frozen north. Sufficient, it was a strange land. Have you ever had friends return from foreign lands and glowingly tell you of the wonders of that place? There is a place for all of that ilk. Came this friend then, and boasted of the art and craft with which the natives of this country fashioned their boats. Newfoundland, the land of the real craftsman, said he, where men work for the love of working, and have minds as simple as boys. Truly a beautiful sentiment.

No publicity bureau ever painted more beautiful canvases than did this friend. In the end I fell. We would go to this Arcadia, and that with all haste. So gas and oil to the little car and farewells. Our destination, Newfoundland, the land that nobody knows. We were going to find out.

If you look at the map at this point, you will get an idea of where we were heading. In due time, making allowances for man made instruments, we reached North Sydney, Nova Scotia, which is the end of land travel in that country. A boat conveys you across the ninety miles to the mysterious island, Newfoundland. We got aboard and before long were steaming out to sea. Those of you who understand what makes the English Channel so bumpy will understand what makes this water the same. But the steamer was a big one and it looked like a quiet crossing.



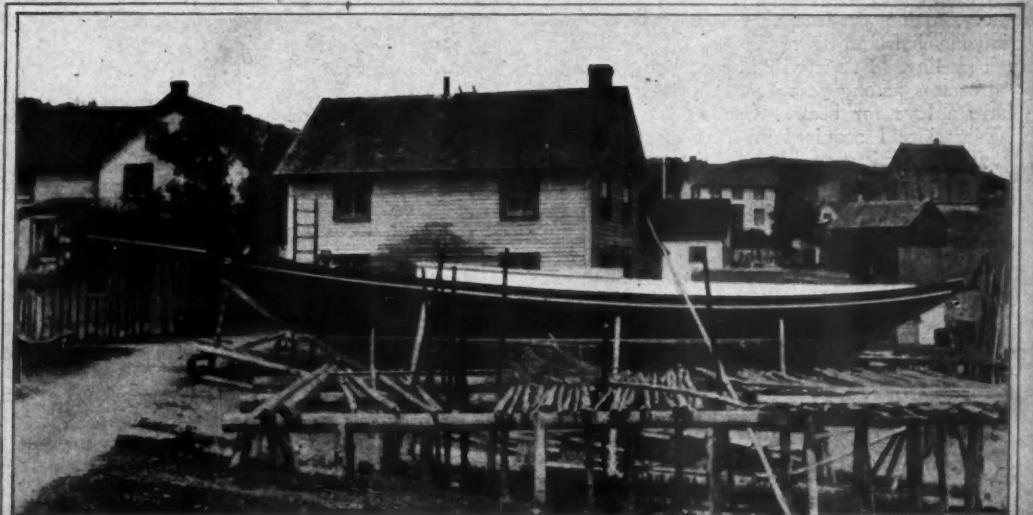
*Where Maybelle was built,  
Twillingate Harbor, Newfoundland*

There are nights and nights at sea, as they say in the story books. The former night is sometimes used to indicate a hideous comparison. That was the kind of night ours developed into. Waves raked us. The mast-heads seemed to dip and that sort of thing. Chairs weren't trusted alone but were tied together. Passengers retired at seven. Groanings



and creakings held prominence in the ship's concert. Stars ran to cover. And the moon hid itself. My first taste of Newfoundland waters brought that unforgettable thought: suppose my friend was wrong. More gyrations and squeakings. To bed, we said, enough of this.

Bed was no haven of rest that night. Not until we learned the secret of rest. *Maybelle, the way she greeted us upon our return to Newfoundland. Still much to be done upon her*



ing, at least. Mattresses on the floor are far more comfortable than strangle holds on bed rails. Lying there on your back it seemed that the pilot was trying to do a loop-the-loop. Never quite succeeding he kept coming back for another. I drifted to sleep with my feet ninety degrees above me. I dreamed I was riding in a scenic railway at Coney Island. Suddenly we rounded a hairpin turn high above the beach and I was thrown out. I fell and fell finally waking up over among the suitcases under the lower bunk.

Came dawn, and like some it was not one to make a person clap his hands for joy. Nor yet make a steward pulsate with laughter. Poor fellows, those, on this morning. Outside it was gray and thick. We couldn't find the coveted land. The Captain thought, brought it to our attention an hour later about fifty yards off our bow. Cliffs were all we could see. We seemed to be slipping into a crack in the wall. Yes, by all that was wonderful, it was a harbor; with an entrance of perhaps forty yards across, no more. Port-au-Basques it was called. Crack-in-the-wall we called it. And so we had our first lesson in navigation from these sons of Newfoundland. Good. If they built boats the same way they handled them we were satisfied.

An engine and some cars stood before us. For lack of any other facilities we boarded them. And so we started the weary trek across their country by narrow gauge rail. "Two days aboard a narrow gauge train; one wreck; and how I learned to sleep standing up" would be a good and inclusive title for this chapter of our trip were I going to dwell for long on this subject. But I'm not. Sufficient that I show you a picture or two of our weary engine lying among the Newfoundland nettles, which things I might say in passing, grow almost to tropical luxuriance in this semi-frigid climate. But I can never think of that little journey without thinking of some of the awful faces Bob made upon certain occasions. The primitiveness of it all got him. He could never quite stomach the idea of large portly ladies trying to squeeze three in a seat with us. And to have his tired sleeping body pushed firmly off the seat to make way for an itinerant native was most ungentlemanly and unsportsmanlike in his opinion. I hated it myself, but what to do? Summing it all up, hectic is a good word to use.

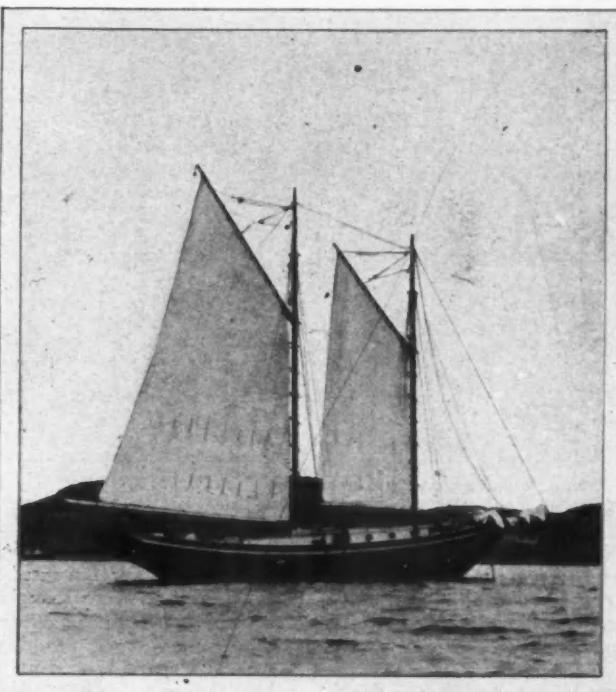
When we looked out of the window we usually saw great wastes of one-time forests lying for miles on either side of the track. The work of the trains. Ridge

after ridge of low hills stretched away before us. Their tops usually bare and gray rock. Mostly it is as though the land had been worn off smooth by the wind and the sea. There are no high mountains except in the very interior. Here for a brief space we enjoyed green forests climbing to the very tops of the glaciated hills. In the center of this most pleasant area we stopped at a small town. Corner Brook by name. Here the International Paper Company has a mill. Wood comes here from all over the island to be made into pulp. You are astounded by the sudden activity and hustle in the very midst of the forests. Our other stops were mainly water tanks, with only a handful of people at each of them. But along this line lives most of Newfoundland, except the fishermen, and when they travel the railroad is all they have. Step a few hundred feet away from the track along here and you would be lost. At least I would, so thick was the vegetation.

Streams flow over most of the island. They are alive with trout and salmon, just waiting for the hook. Fortunately or unfortunately, however you look at it, we had neither the time nor the inclination to attend to them, but I am told that many have.

The train bumped to a standstill which we were informed was the end of the steel. Thirty some odd miles out to sea lay Twillingate, our goal. We would need a motor boat to get there. A word about these motor boats. We saw several of them tied to the end of a rough stage there. All were one cylinder affairs, I know because I made the rounds peering under each hatch in turn looking for the most powerful engine among them. We discarded these giants some ten or fifteen years ago in our country, and I think they must have all been shipped up here. The one cylinder takes the place of half a dozen present day ones. Gasoline and a huge sweep is all they require to put off for any part of the island. Speed! No, they never know how fast their boats go because they have all the time there is. They judge the speed by runs. Thus, to make the run from Lewisporte to Little Bay Islands in eight hours is considered good speed. Twelve hours would be poor speed for that run. Some six hours saw us across the gap. Fifty vibrations a minute makes about 200,000 rattles we received before setting foot on terra firma again. I felt like an old man, and my knees shook when I walked. But they could for all I cared, we were in Twillingate, Newfoundland.

Nor had we come unheralded like the Arabs that pass in the night. By some magic method of telepathy



*Drying canvas after a night of rain in St. Anthony's Harbor, Newfoundland*



*One of the incidents which slowed up our trip across Newfoundland. The narrow gauge train leaves the track.*

every man, woman and child between the ages of four and eighty I believe knew we were there within five minutes after landing. You who live in a small town will know what I mean. The hotel keeper already had his register dusted off when we arrived. A cup of tea and some biscuits were laid out on the dining room table for us. After a long and weary day it was quite a relief to leave the inquisitive folk below and crawl into a big, wide, soft double bed amid the peaceful surroundings that were ours.

Almost the first thing that met our eye next morning was a small fisherman lying at anchor directly below our window. Our man had built it we were told. So we borrowed a skiff and went aboard her the minute we had laid away our breakfast. Here was a schooner of about sixty feet overall which certainly must have made the owner a proud man. She was built; and if the man who built her didn't understand any angle of the boatbuilder's art it certainly wasn't shown in her. She was a little husky, built primarily to carry fish, but she was not crude in any sense of the word. We had expected to find this side of their building not so well attended to, but her deck and quarters were as trim as any I've seen hereabouts. We studied some of the painstaking hand work that filled her insides, and the builders had done their job well. I was anxious to get to the man who had done this. So we came ashore and started up the road to his house, perhaps half a mile up the road.

Sometimes you run across a man who, if he asked you, you'd gladly give your wallet to hold. You can't say why—it's just the look of the man. Certain folks seem to express their honesty in their every move. Such a man was Thomas Roberts, Jr. I saw him first cutting up some firewood out behind his house. A man of fifty five perhaps with a gray beard and kindly eyes that spelled honor and straightforwardness. I knew from that first moment that if he would do it, he was the man to build my boat.

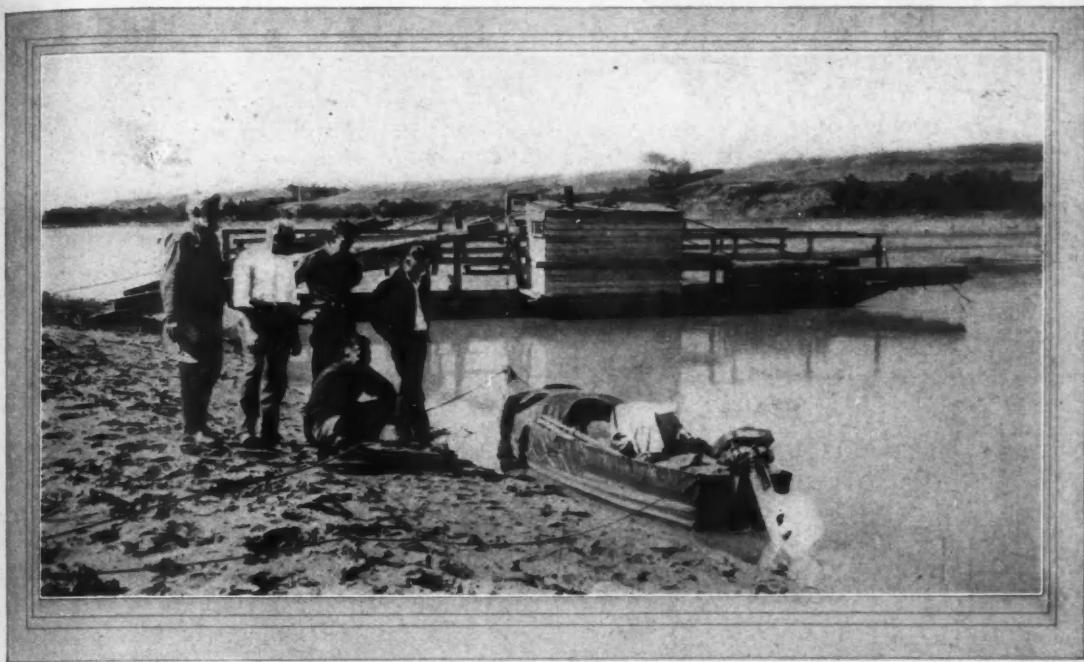
His father and his father's father had built schooners. All his brothers had been men of the sea. He had remained at home and built their boats. I pic-

tured again the trim schooner below our window. Somehow or other I wanted my boat to be like that one. My ideas were changing a little I think, as I thought of that boat and the storms she would ride proudly through. I would just change that boat a little and I would have the wonder boat. I would have a boat that would take me the world over, if I chose. I would have a real man's boat. The while this old man eyed me with his cool gray-blue eyes.

"Come in and have a cup of tea" says he. No visitor ever leaves the homes of these generous folk without a taste of their hospitality. We went in. Somehow or other he had an inkling of our purpose, for news travels very swiftly, as I have said. We told him briefly our hopes and our wishes. 'Twas then that he told us he had built his last boat. Our faces must have looked a mile long at this, I'm afraid. He was getting old, he said, and building a boat nowadays was a very long and hard task, to do it right. When he saw the state this put us in he seemed affected a great deal. We told him our story from beginning to end and I believe he was touched, for he regarded us with almost a mist before his eyes. But it was so hard to get wood now, he said. He couldn't get good help. Prices were high. He talked these things over to himself, sort of as if he were considering the possibilities. He was having a struggle; there was no doubt about that.

We stayed with him a day more and told him of the wonderful boat we had planned. His eyes glowed as we showed him pictures of yachts built in America. His pride swelled within him, I think, when he thought that he was going to build one for an American. Just before we were ready to leave he said in his simple way, "I'll build her for you." I could have flown out of his house on wings. In fact I can't recall to this day a single thing about our walk back to the hotel, so overjoyed were we. We wrung each other's hands; we had succeeded.

He would begin work on her within the month and have her all completed by the following June. Details were gone over; plans (Continued on page 132)



*River experts size up my canvas boat during lunch time halt*

## BOATING ON ARCTIC WATERWAYS

*Several Days of Interesting Voyaging on the Saskatchewan Past the  
Ruins of Many Old Fur Trading Posts*

By LEWIS R. FREEMAN

Bucking Bars and Shallows

### Part XIII

BEFORE pushing off for my second day on the river I did what I could to stiffen the light jointed oars against a repetition of the failure which had so thoroughly messed up my landing efforts during the storm of the previous evening. In that comparatively quiet water this had only resulted in a few minutes more exposure to the rain; in the rapids of the lower river a broken oar might well mean an upset and the loss of much irreplaceable outfit.

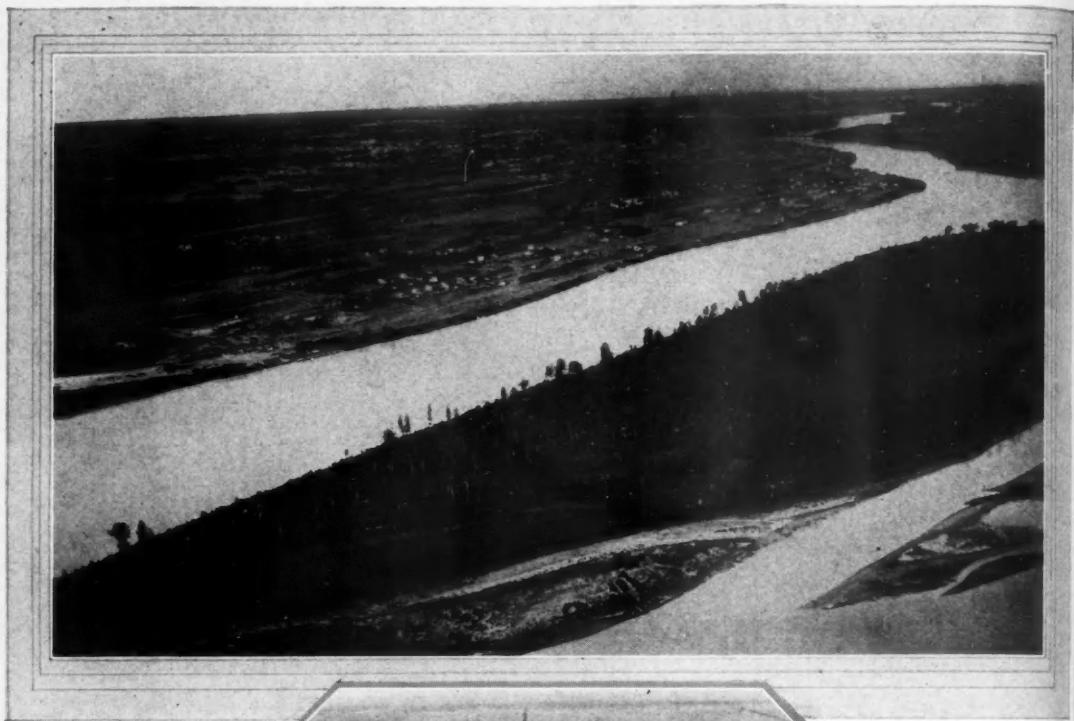
A three- or four-layer wrapping of tarred binder-twine was the best I could do with the materials available. While I applied this palliative by winding in on a long section of twine fastened to the garage door M'sieu Leclaire—unable to start work in the wheat-field until the sun had sucked up moisture for a few hours—rattled on with the news of the neighborhood. The most interesting item had to do with that big country house which Providence had so tantalizingly dangled before my eyes at afternoon tea-time. It belonged to Lord Rodney, scion of the famous British naval family, who, with Lady Rodney, had been spending his summers there for a number of years. Several farms had been combined under one management to form a sizeable estate, which had been most practi-

cally and successfully managed, especially dairying, in which Lady Rodney was especially interested, had been notably successful. The unassuming just-farmer demeanor of the young agriculturists had quite won the hearts of their neighbors—mostly simple Quebec French.

I couldn't help but wonder if the appearance of The Strangler, wafted on the wings of the storm, would have upset that noble British household on the hill as effectually as it had the humble one by the river.

One of those idyllically perfect late summer days such as only Canada knows followed that of the thunder squalls. The sun shone brilliantly from a clear blue sky; the birds sang riotously in the trees along the river; the air was sweet with the fragrance of flowers and the wind-wafted scent of new-mown hay.

A few late mosquitoes, warmth-revived, lifted languid wings and executed scouting spirals as I bailed and retrimmed the boat, but they were lacking in the initiative born of blood-lust that drove them in massed attack a few weeks earlier. The needle-prick of an unobtrusive no-see-um reminded that the season of the venomous little sand-fly was not yet over, but even this savage little pest had pretty well shot his



*Prince Albert from the air*

bolt for the season. The terrible insect scourge which I had encountered on the Peace, Athabasca and Mackenzie was not to prove even a passing annoyance on the Saskatchewan. The last week in August marks the turning of the tide. After that one can enjoy to the full the outdoor delights of a region which, during the preceding ten weeks, exacts an almost prohibitive blood-toll for every minute of exposure.

After photographing my French friends with the boat I shoved off under a shower of *bon voyages* and *au revoirs* which seemed to indicate that a night's contact had completely eradicated the last of The Strangler suspicion that had come so near wrecking my arrival. The river continued to flow almost directly northeast, narrowing and deepening slightly after the stretch of shallows below Fort Saskatchewan. Both banks became higher again, with a thick belt of trees covering them from plateau-rim to water-level on either side. Poplar, with its straight green-gray trunks predominated, with a fringe of willow at the riverside and occasional birch and spruce appearing at higher levels. Ripening blueberries and saskatoons tangled with wild rose bushes on the narrow strips of benches, with mosaics of blooming flowers matting the thick grass beneath.

Farm-houses had retreated beyond the skyline rim again, but drinking places where the banks had been



*Breaking virgin prairie along the Saskatchewan River*

cut down to give access of stock to the water occurred every mile or two. Clumsy boats, with occasional fishing-poles stuck in the banks above, eddies, marked these points as the frontier of adventure for boys from the farms above. That none of these was in sight now would have been due to the fact that the harvest, with its demand for every pair of hands, was just getting under way in Alberta. With crops the heaviest ever known over most of the country, hopes were correspondingly high. Everything indicated that Canada was about to harvest the greatest grain crop it had ever known. The whole farming region bubbled with optimism; one could almost feel it pouring down from the golden-freighted plains to the river.

It is sad to record the sequel. Wheat in the field is not wheat in the elevator. An almost unprecedented spell of stormy weather which broke a few days later and continued with slight interruptions for over five weeks, carried harvest operations into the last week of October. The ultimate yield was greatly reduced, both in quantity and grade; some fields were a total loss. Canada's grain crop for the year was still enormous, but the returns from it were far below what those plucky hard-toiling farmers expected and deserved.

But if there was little human life along the river



*Radio concert at Fort Carlton*



*An Indian camp on the Saskatchewan*

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the river

that morning, it made up in piquancy what it lacked in numbers. Passing the point where the Redwater River and Beaverhill Creek flow to the Saskatchewan from opposite directions, a hail and a flutter of brown arms from the left bank drew me in for a closer survey of a surge of movement that I had passed up unemotionally as pigs wallowing in the mud of an uncovered bar. What I had taken to be rooting porkers was revealed at closer quarters as a half dozen very merry young Doukabour girls wriggling ecstatically in the sun-hot sand of the Redwater bar.

The saucy sextette had washed their clothes, hung them over the neighboring willows to dry, taken a dip on their own account and were now basking in the sunshine and eating wild strawberries. Or at least they said they would give me some strawberries if I would land and take delivery; I never got near enough actually to see berries with my own eyes. The minxes were taking a holiday because harvest work was held up by wet fields and there would be nothing to do until the morrow. With the audacity born of numbers, they suggested I wait until their clothes were dry so as to ferry them across for a visit to friends whose farm was on the opposite side. They also wanted their pictures taken—when their clothes were dry. It was easy to fall in with the mood of the

bantering Lorelei but time forbade complaisance in the matter of their plans.

That was my first contact with the second generation of the Doukabours, the original migration of which strange Russian sect gained so much notoriety a couple of decades ago as a consequence of staging mass protests against fancied injustice by casting aside its clothes and marching about the country in Lady Godiva parades. Unfailing patience and consideration on the

part of the Canadian authorities gradually brought the elders understanding and sense and with the passing of the years they have become contented and prosperous. The second generation has now grown up and the third is arriving. I was to have transient glimpses of all three generations where they had settled to their new life on farms that touched the Saskatchewan at many points during the next five hundred miles of my voyage.

After running between northeast and due north for another fifteen miles the river swung by a sharp right-angle bend to a course which averaged almost directly east for another thirty. At a number of points the current quickened to five or six miles an hour and ran in easy undulation over a shallow boulder bottom, but at no place was there anything like a rapid. Toward the middle of the afternoon I landed at a point marked Pakan on the map (Continued on page 106)

# PRACTICAL KNOTS AND SPLICES

*An Excellent Treatise on the Art of Tying Knots and Handling Lines. Simple, Useful and Ornamental Rope Work of All Kinds Fully Explained and Illustrated*

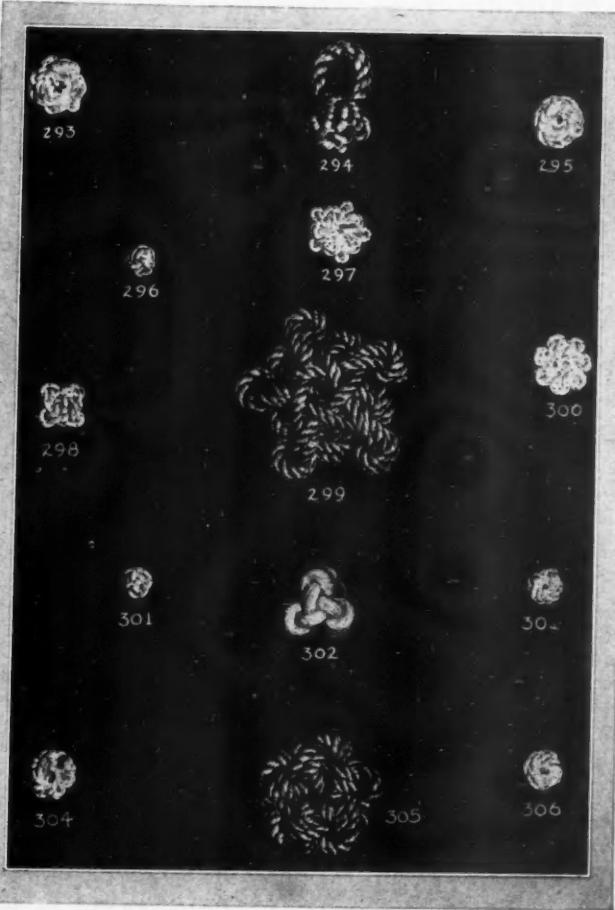
By CAPT. J. N. PATTON

## Part VII

**I**N THE previous articles of this series describing practically all forms of useful as well as ornamental knots, a goodly number of the five hundred odd varieties have been described. Those which are mentioned in this chapter are practically all ornamental knots of various kinds which can be used for finishing off the end of a line or rope. It is a part of every boatman's proper education to become familiar with all of the useful knots which are adapted to small boat work. While it is a pleasant occupation to prepare many of the fancy knots shown, they are not essential to the safety or security of your boat. The simpler knots described in the earlier chapters on the other hand may often mean the difference between a boat securely made fast and one which is likely to go adrift through incorrectly tied knots.

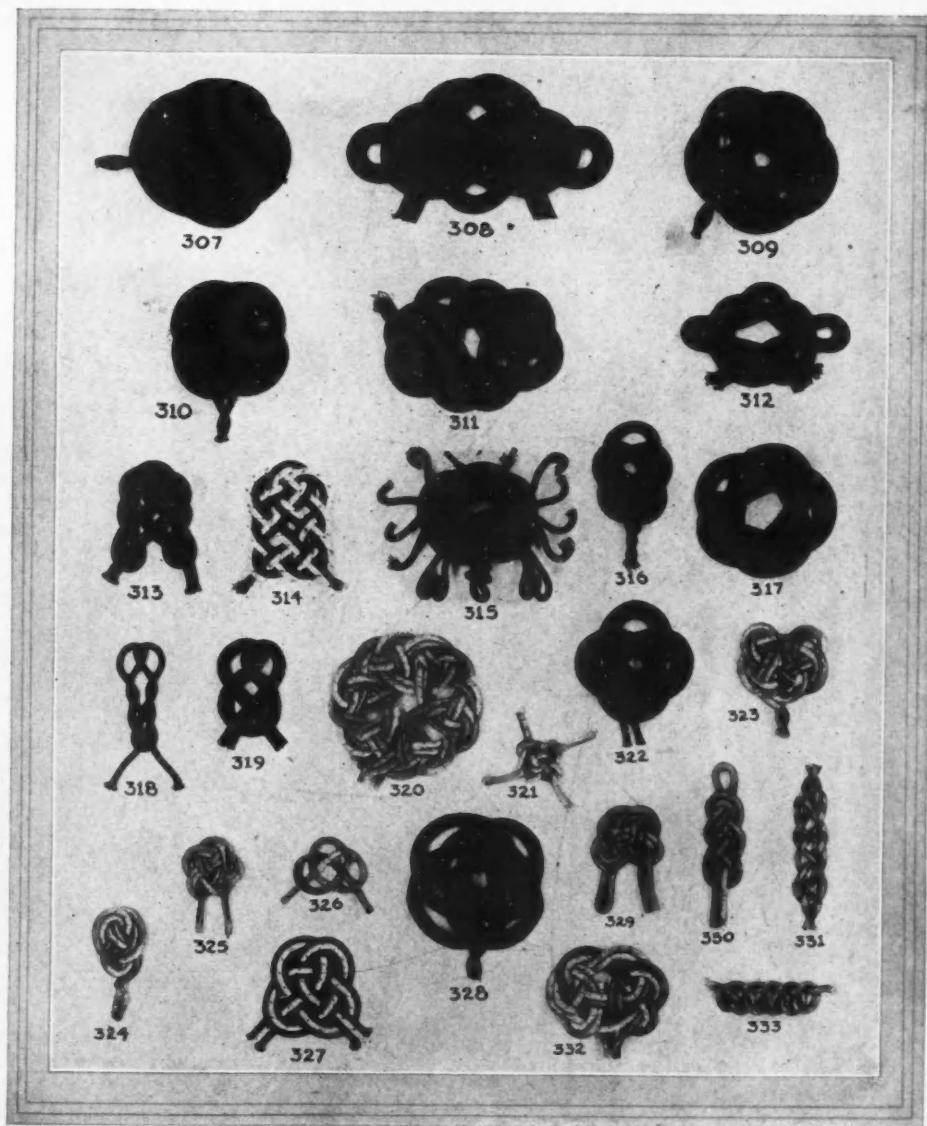
In this article particular emphasis is given to the construction of a picture frame decorated with fancy rope, diamond and double diamond wire explained and find this an agreeable evening's pastime and provide for themselves a truly nautical home decoration as well.

I shall endeavor to explain the method of making some of the fancy end of rope knots from which you can make others by an additional tuck, crown, etc. The flat knots can be copied by following around the lay with a piece of phone wire. Early in the series the wall, crown, Mathew Walker, lanyard or man-rope, diamond and double diamond were explained and are classed as practical knots as they are still used for practical and ornamental work on shipboard. Many of the larger knots in my collection are built up by using as a base or foundation a double diamond knot without the last or finishing tuck being made and with ends protruding from side of the knot instead of the top. A few of the larger knots are really three



and four knots built up on top of one another.

Next in importance is the five strand star knot 345, top view, and from which many different knots can be made. To make 345 seize five strands of wire together about four inches from ends and about twenty inches long. Dip working ends in shellac to prevent cotton insulation from skinning back. Hold seized end in left hand and with right hand twist a flat half hitch in each strand up close to seizing with running part of strand under standing part, and ends pointing to the right. Keep all hitches flat and pass ends up through. Next hitch to their right, then gently pull all even but not too tight and keep all hitches flat. All ends will now be pointing up through hitches or loops. Now take each end around the next strand in toward center of knot and out and back under its own part. (This makes another ring of half hitches on top of the first ring). Ends are now pointing toward the top center of knot. Pull all ends even. Now tuck ends back right to left and down through both hitches to its left. All ends are now pointing down parallel with body of strands. Now turn knot over and tuck ends to the right following the other strand leading through loops and under next strand to the right. Ends should emerge at side of the knot and between lower pairs of hitches. Cut ends off short. After you have mastered the star knot, make another leaving the ends longer and tuck them toward the top center of knot, and emerging at that point. Pull ends gently which will leave the strand showing between hitches as per 349. Cut ends off short and push back out of sight in center of knot or with the five ends make a crown and tuck ends down through body of knot as per center of 344, which shows a center crown of five strands.



Number 361 is a six strand star using but three of the six strands for the center crown. Many variations of the star knot can be made and any number of strands may be used.

300 is a seven strand star crowned, 298 is a four strand star crowned. 347 is a five strand star but after the second loop or half hitch instead of tucking ends back and down through next pair of loops to left, tuck ends down through second loops to left. Be careful in tucking last end to go under first strand and then down through loops.

297 resembles 299 (except the crowning). Note the difference in size when made of white phone wire or six thread manila.

296 is a single rose knot using three strands.

336 is a four strand lanyard knot. Crown the four ends and tuck back through the body of knot and you will have 346 top view.

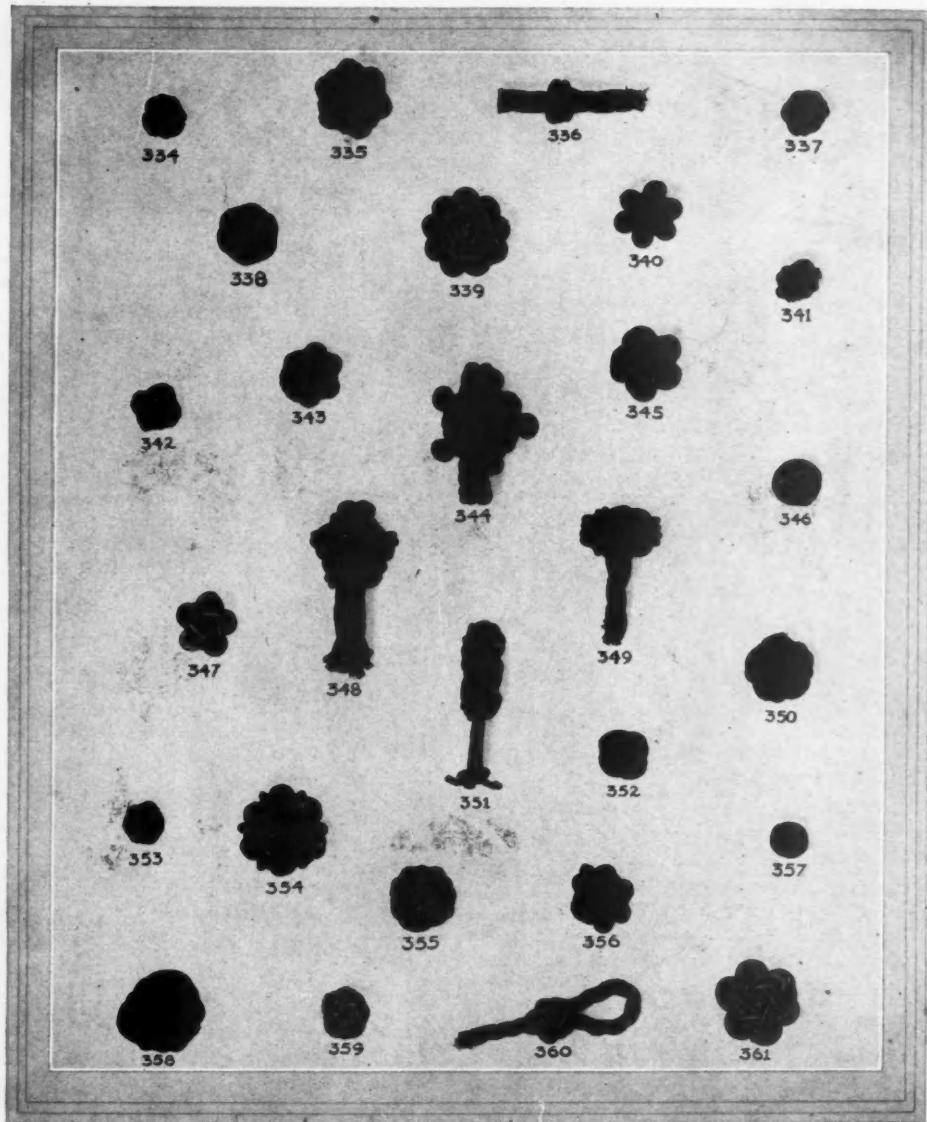
360 is a double diamond eye splice. Make a single tuck with ends through body of rope and then a single and double diamond.

312 is a masthead knot of two parts. 326 is a prolong knot.

307 is a three part five strand Turk's head flattened out into a rosette.

317 is a three part loop three strand Turk's head rosette. All of these flat knots can be readily copied with a piece of wire. A perfect flat knot is one where every strand leads over one and under one. Most all of the fancy knots to be illustrated are original and you can no doubt, after a little practice, make some very artistic designs.

Years ago the writer made a number of fancy rope frames that were greatly admired and accepted by his friends. First practice some of the flat knots with wire and then with six thread manila. Then scout around for a good picture or painting of a full rigger with all her kites set, an old barque hove to in a gale, a cup defender reaching for the mark or any picture that smells of the sea and shows action. Take the outside measurements of the picture and make your frame to fit, allowing 1/16 inch for canvas. Select well



seasoned soft dry wood  $\frac{7}{8}$  inch to 1 inch thick and 4 to 6 inches wide depending on size of picture. One of my frames was 5 feet by 6 feet. Cut the corners of frame on a bevel so that frame will not be flat but flare out about an inch as in a shadow box frame. Glue and nail well and cover with canvas by stretching and tacking the canvas over the face of frame and to the back with copper or galvanized tacks. Make two diagonal cuts across center of canvas and tack inside edges to back of frame. Old heavy canvas may be used if not chafed too badly. Now paint the canvas with aluminum paint and let dry. A very pretty effect can be obtained by shading the aluminum paint with a green bronze toward the outside edge. Use six thread hard lay manila for the decoration knots and run it quickly through a gas flame to singe off the whiskers. Use  $\frac{5}{8}$  or  $\frac{3}{4}$  inch round head brass brads. Around the inside edge of frame, tack a single part of six thread manila to hold the picture or glass, making a long splice in lower edge. Leave one corner un-tacked until splice is made.

Your frame is now ready for the decorative knots. Measure center of all four sides and mark with a brad as a guide to placing knots even. You can use any of the flat knots you desire. Number 308 or 399 in the next issue would be good types for top center and made of either two or three parts of six thread. For a large frame I would suggest using three parts as you can use one part to later switch into many of the smaller type to fill in spaces between the large knots.

For corner knots I would suggest using 327, 381, 394 or 450. For intermediate knots, 330, 382, 400, 447 467 and to fill in spaces, 319, 326, 329, 333, 458, 459, 460, 463. Start with the center of your two or three parts of six strand manila and allow plenty of ends. If the intermediate knots need only two parts, you can make scroll work with the other strand. Make your top center knot complete and even, and place in top center of frame, and secure with six or eight brads. Do not drive brads out of sight until all the knots are placed as you may wish to shift one or more. Work from the top center (Continued on page 204)

# FROM LANDLUBBER TO SAILOR

*A Year's Training and Experience at Boat Handling Restore the Skipper's Health—A Second Vacation Journey a Simple Matter*

By FRANKLIN MARTIN

## PART III

IN May, 1927, I rigged up an aerial and wired the boat for a radio. I installed a rheostat and voltmeter on the cabin wall so that I could use the regular twelve-volt storage battery on a six-volt Atwater-Kent radio strapped to the cabin roof. I had a cone speaker screwed fast to the cabin roof and a portable horn speaker on a long wire that I could use out in the cockpit. The B batteries were in a dry locker protected from any possible dampness by pieces of glass and sections of old automobile tubes. The boat was to be ready May 15. I foolishly thought that this actually meant the 15th and I got ready to embark. Here I learned my sixth lesson: among people in the boat business the 15th means as soon after the 15th as they find it convenient to get the boat ready. Folly was finally ready on the 28th, and my boating friends tell me that this shatters all international punctuality records. To make the affair official and complete, I was charged storage for the thirteen days delay period!

By this time my family had made other arrangements and could not start, but I wanted to get the boat away from the dirty boat yard. I knew a good harbor in Rye, well up Long Island Sound, and I invited a friend who likewise was a keen radio bug to make the trip with me. We got off on Sunday, May 29th, at 10:44 A. M. When I got out into the upper bay and opened her up, the engine popped back into the carburetor and stalled. I spent some time adjusting the carburetor before I started bucking the tide and driftwood in the East River. As it was Sunday, there was little traffic and the river passage was a cinch.

After passing Hell Gate I brought the loud speaker out into the cockpit and got local stations so loud that people in distant boats were all looking around to see where the band was located. The music was so loud that it drowned the hum of the generator and the roar of the make and break of the magneto. This condition lasted for miles up the Sound. After passing College Point I found that I had to steer about half a point to starboard to make the next buoy. I could not

understand this because in all other places the compass seemed about right. We tied up to a vacant mooring in Rye Harbor at 3:00 P. M.

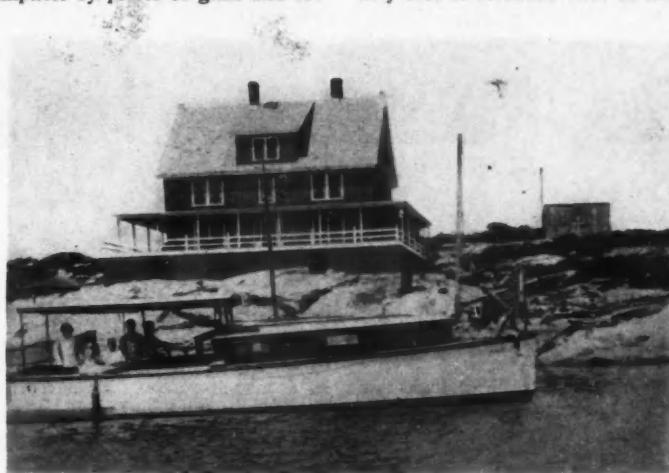
I pumped about ten buckets of water out of the bilge and had to add a pint of water to the battery. I had learned by this time never to trust boat builders on such items. We spent the night on board listening to the radio in the cabin. Although I had less than fifty feet of stranded wire in the double aerial, includ-

ing the lead-in and wire in the cabin, we logged a lot of out-of-town stations, such as: Bridgeport, Pittsburgh, Boston, Springfield, Chicago, Cleveland, Richmond, Atlanta and DXN in Whippany, N. J. This is nothing remarkable for the most embryo DX hound, but I think it is quite surprising for a comparatively cheap set and using such a short low aerial.

The set was the only one I could find suitable to be strapped to the roof in such a cramped space, and the highest point of my short aerial could not have been more than ten or fifteen feet above sea level. At my home in New Jersey I had logged stations from Cuba to California with a ten tube set on a long aerial but I had never before had the misfortune to tune in on DXN in Whippany. This is less than ten miles away, but I had to go to Rye in a little boat to get them. I suppose that the acoustic qualities of the sea must be very good for radio.

The next morning I left the boat to the tender mercies of the American Yacht Club and went home by train. On June 9th I went on board with my family, each one a year older and more experienced with the ways of the sea. I was much better physically, and felt quite sure that I could handle our big 85 pound storm anchor if necessary. We spent the night on board, after getting everything ready for my second trip to the Shoals, and got under way after breakfast at 6:45 A. M. June 10th.

Out on the Sound there was hardly a breath of air, but there was a very light fog so that we could not see the Long Island shore at all, and could not



Folly moored in front of our house at Isles of Shoals



*Fog bound crew trying to preserve summer tan*

see either shore after we got a little way out. I tried the radio again, but we were so far from New York that the engine noises drowned the music. I could only tune in stations by using the ear muffs so this was not very satisfactory. During the calm period later in the morning my wife and the two older boys took tricks at the steering wheel. They had done this once or twice the previous year, and after this they did it frequently. This was quite a help although I had to be on deck all the time to keep the boys from accidentally changing a course from West by North to North by West.

We had our usual cold lunch in the cockpit. In the afternoon the breeze came up and it got a little rough, although my experienced crew did not mind it a bit, and at 5:00 P. M. we tied up at our old place in Stonington. It seemed just like getting home, and the kids were delighted to recognize all the old familiar landmarks. We had a thunderstorm in the night which did not bother us in our snug little quarters, and in the morning there was a dense fog. The fog was so thick we could hardly see the bow from the stern. About 9:00 A. M. the fog began to lift and was followed by a gale of wind, so we remained at ease, took on supplies, inspected the quaint old town, talked to the fisher folk along the

water front and had a good time despite the weather.

June 12th brought us a flat calm with a very light westerly air, and we got off at 7:10 A. M. At 9:45 A. M. we were rounding our old friend Point Judith, the light wind had hauled around to the south, but the sea was still quite calm except for a long gentle swell, and everyone was happy. The day was quiet and uneventful. At 3:10 P. M. we entered the Cape Cod Canal, paid our toll, went through like a speed boat with the tide and tied up at the same old float as last year at 3:45 P. M. Considering our young crew we had done pretty well; we were only three days out from Rye and had spent one of these days tied up in Stonington.

I was so much pleased with our seamanship and ability that I forgot the fourth costly lesson I had learned with so much pains the previous year.

We got under way from the canal before breakfast on the 13th at 5:23 A. M. I expected to show the world that, even with a family, one could make time in a little motor boat. I forgot my lesson and I forgot that it was the 13th.

However, we got off in good style, and as we were leaving the canal, my wife was preparing breakfast. When we got out into the ocean there was a real chop disporting itself, Folly began to creak and groan



*Hen & Chickens Light Ship*

and pitch and roll and squirm, the dishes began to crash in the cabin, and the kids began to announce that they were not hungry and did not want any breakfast. Although I had forgotten my lesson, I soon remembered it. I watched my chance, did an about face, re-entered the canal and tied up to the float we had just left. The kids at once became hungry and we had an immense quiet peaceful breakfast. My wife said nothing. Any other wife would have said, "I told you so."

During the morning it blew quite a gale, the kids played on a sandy beach and went in swimming, and we heard very plainly over the radio Lindbergh's reception in New York. At times the words of the announcer were completely drowned by the noise of the boat whistles in New York Harbor.

By noon the wind had gone down considerably and after lunch we got under way at 12:55 P. M. without having the least idea where we were going. I was very much disappointed at having been held up so long, but hoped that we might feel our way into some strange harbor a few miles nearer our ultimate destination. I had no desire to have the water sucked out from under us again by the big Boston steamers. We laid a course along the coast, but the sea was going down all the time and finally I got bolder and laid a course for the Boston Lightship. We passed this at 5:00 P. M. I do not approve of touring out in the open ocean with a boat load of kids so late, but the middle of Massachusetts Bay seemed to be a poor place to spend the night, and we kept on going. At about six o'clock we sighted the entrance to Gloucester Harbor in the rapidly increasing darkness, and we tied up to a float at Gloucester at seven. We had made a very good run in spite of our late start.

The following morning we got under way after taking on supplies, and entered the Squam River. Again we scraped bottom, but the tide was rising and no harm was done. At 9:00 A. M. we were out in the ocean again in a flat calm. At 10:15 A. M. we passed Newburyport and felt that our voyage was practically over. Two years ago I considered this an almost impossible voyage for a small boat from Portsmouth. Familiarity breeds contempt. We entered the familiar Piscataqua River and tied up at a wharf at Portsmouth.

Here we had lunch, visited some of our old friends, loaded up with a lot of supplies for the house and got under way for the Shoals. We arrived at the Shoals and tied up at our old mooring. Our time out was 58 minutes, running at about three-quarter speed. I only made this trip three or four times in Mildred and my average time was about an hour and a half.

During the summer I again had to plane, stain and varnish the doors and lockers. I also varnished the

outside of the boat but I did not waste any time painting. The cabin still leaked as badly as ever in spite of the builders having made a great fuss about repairing it **NO CHARGE**, and I just let this go as one of the necessary evils of the boat business. The boat was mostly used as a ferry to shore before and after the regular summer steamer was running. On these trips we always had extra passengers and loads of extra supplies for the people living at the Shoals. When the steamer started running we made very few trips ashore, and altogether only made 19 trips. I knew the way with my eyes shut in any weather and there did not seem to be much excitement in such a tame trip.

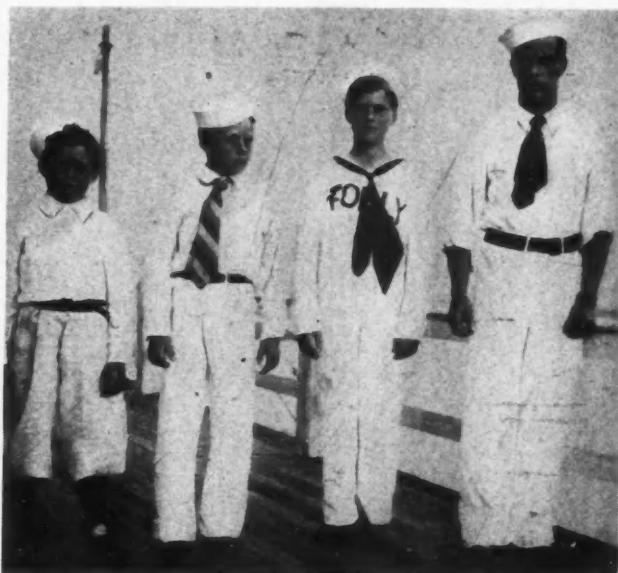
We planned to start home on September 14th, but during the summer I had again forgotten my fourth lesson and would not listen to my wise wife. We got under way before breakfast at 6:25 A. M. I laid a course for the Twin Lights on Cape Ann as I was tired of running a ground in the Squam River. This course took us well out into the open ocean. Before breakfast was ready we

were out of the lee of the Shoals, the waves got bigger by the minute, Folly got kittenish, the dishes crashed in the cabin and the kids lay around in dying attitudes on the floor of the cockpit. Breakfast was again impossible for the kids although I was fed at the wheel as usual.

We had given a grand parting salute to all our friends at the Shoals and I refused to go back. Also it was almost too rough to try to turn around. We stuck to it with the sea getting rougher every minute, and eventually rounded Cape Ann and tied up in Gloucester Harbor at 10:20 A. M. Once more my much enduring wife was silent as we had our second breakfast and took on supplies. Well fortified with food, we got under way again. The sea was still rough, although not nearly as bad as in the morning. We ran at somewhat reduced speed, and began to follow the channel buoys into Plymouth Harbor.

I felt that I was pretty bold coming into a strange harbor like this, but I followed the buoys most carefully. I could not see the sense of them as they seemed to wriggle and twist far off the course, and I could see the town of Plymouth across a clear stretch of open water far off on our starboard beam. It was just as well that I followed the buoys for I discovered later that my clear stretch of open water was only a few inches deep in spots and most of it just mud flats at low tide.

I found that there was no suitable dock to tie up to, so I went out among some other boats where I knew the water must be deep and had no trouble in dropping my 65 pound bow (Continued on page 158)



*The men in the crew, the youngsters growing up to sailors*



*Outboards rounding the southern turn on the San Diego Course. Note the almost perfect circular curves in which the boats are running*

## ACCURACY IN RECORDS

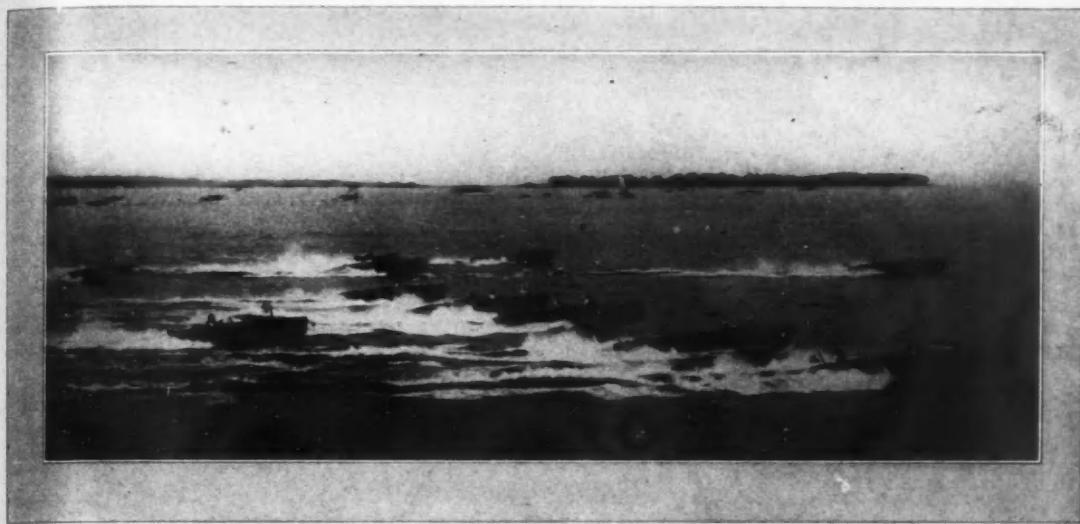
*The First of a Series of Articles Discussing the Precision of Motor Boat Racing Records and the Accuracy Necessary in Timing and Laying Out of Courses*

By W. MACK ANGAS,  
Lieutenant Commander, Corps of Civil Engineers, U. S. N.

**R**ECENT developments in motor boat racing have produced conditions which demand a high degree of precision in the records of speeds made in competition. This is especially true in the case of 151 class hydroplanes and outboards for in these classes there are valuable and much sought trophies which are presented at the end of each season to the boat making the best speed during the entire season in a recognized and sanctioned race of specified length. Hydroplanes of the 151 class and outboards of all classes when racing in any regatta of recognized importance are therefore not merely running against their immediate competitors for the trophies of the regatta in question. They are also competing for even more highly prized national championship trophies with all boats of the same class entered in all races of the same length in recognized regattas throughout the entire season. The Elgin Trophy for 151 hydroplanes

was perhaps the first of these national trophies to attract widespread attention but with the wonderfully rapid development of outboard racing similar prizes offered for boats of the latter type are attracting contestants all over the country, if not all over the world, and the competition for them is as keen as for the trophies emblematic of championship in the so-called major sports.

It is essential to the healthy development of motor boat racing, both as a sport and as a means of fostering the refinement of the internal combustion engine, that these national championship trophies go to the right boat; and that all racing men and the general public too have perfect confidence in the accuracy of the records upon which awards are based. Methods of laying out courses, timing races, and computing speeds must therefore be standardized throughout the country if not throughout the world.



*Start of a fast runabout race in which more than a dozen boats are competing*

Much of this desired standardization has already been accomplished by the American Power Boat Association and the Mississippi Valley Power Boat Association, the two national organizations which control motor boat racing in this country. Records made in the sanctioned regattas of these organizations have for many years possessed a high degree of precision. There is still, however, much to be done to complete the work of standardization, especially in view of the great and growing popularity of the outboard racer. The moderate cost of these sea whippets, the ease with which they can be stowed and transported, and above all the fact that they are real racers capable of speeds which less than twenty years ago would have been creditable for even British International Trophy boats have combined to make them the most popular type of racing motor boat in existence. Outboard races are being held everywhere and the records made in each and every local and sectional meet should in future equal if not excel in precision the records of present day national regattas.

It is the purpose of the writer to open up this entire subject of the precision of racing records for discussion rather than to attempt to lay down fixed rules for the guidance of committees in laying out courses, timing races, calculating speeds, and preparing summaries. The promulgation of rules is a function of the national associations controlling racing. Suggestions will be made however for what are believed to be necessary amendments to existing rules and practices in the hope that even if all such suggestions fail of adoption they will nevertheless serve a useful purpose by

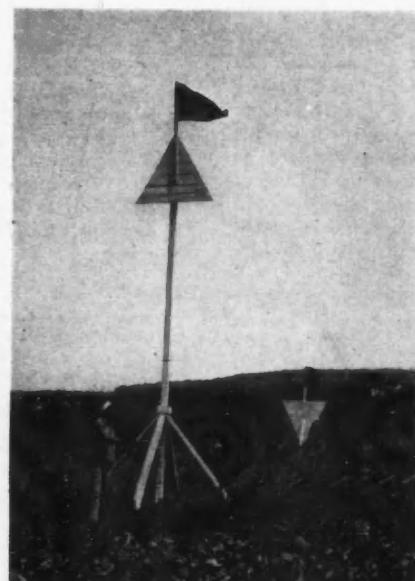
bringing out the necessity of changes and if disapproved will be supplanted by something better.

That accurate records can only be produced by accurate timing over accurate courses is a self evident fact, the triteness of which can only be relieved by the question, How accurate? Absolute accuracy in any physical measurement is as unattainable as perfection. No race course will be free from error in length except by the merest accident, and similarly no timing will be free from error. It is however both possible and necessary that these errors be reduced to a magnitude which permits of their toleration and furthermore *mistakes* as distinguished from *errors* must be eliminated. The sharp and clear cut distinction between a mistake and an error as used in this discussion must be fully appreciated.

A mistake to quote the dictionary, is "A taking or apprehending wrongly, a fault in opinion, judgment, or conduct." Mistakes are avoidable and by a suitable system of checking observations and computations may be discovered and eliminated.

The mathematical definition of an error on the other hand is "The difference between the result of an operation and the true and often unknown result." Errors may be reduced in magnitude until they are so small that they may be tolerated. In an imperfect world they can not be entirely eliminated.

It is therefore possible that racing records be free from mistakes and that the inevitable errors they contain be so small as to be negligible. The elimination of mistakes in timing and computing the data for summary sheets will be taken



*Painting the range marks of the Navy measured mile at Point Vincente preparatory to the trials of the airplane carriers Lexington and Saratoga*



*An outboard runabout on the San Diego Course. Note the good visibility of the permanent mark beacon*

up in a subsequent article. The avoidance of mistakes in laying out courses of given lengths is a problem for the surveyor or civil engineer. The regatta committee should however have a definite knowledge of the error in length which may be tolerated in a race course—i. e. the precision with which the surveyor must lay it out and mark it. Furthermore it is necessary that a definite standard of precision be established and maintained for timing.

The outboard racing rules of the American Power Boat Association prohibit the granting of an American Record to a boat failing to improve on the existing record by at least 0.1 mile per hour. The Mississippi Valley Power Boat Association rules are silent on this point, but as a definite and reasonable standard of precision or tolerance has thus been set up by one of the major associations there is no reason why it should be changed. There is on the other hand every reason for its universal adoption. In order that the *difference* between the speeds of two boats may be known to 0.1 mile per hour it would at first glance seem necessary that the individual speeds would have to be known to within at least 0.05 miles per hour. This is a degree of precision very difficult of attainment when racing over closed courses but one which may be attained under favorable conditions on the measured mile. Examination of the problem of determining the difference between two speeds to within 0.1 mile an hour in the light of the theory of probabilities shows, however, that the occurrence of an error of over 0.1 mile an hour in the difference between two speeds which are individually precise to within 0.1

$\frac{0.07}{\sqrt{2}}$  miles per hour is so unlikely as to be unworthy of consideration. The adoption of this figure of 0.07 miles per hour as the standard of precision

or tolerance in our speed records is therefore urged.

In the case of a straightaway mile course used in mile trials where the timers have properly fixed ranges or sights to definitely fix the beginning and end of the mile the error in length of the course can usually be made so small as to be negligible without undue cost. For such courses therefore errors in speed are due entirely to errors in timing. The relationship between these errors is given by the equation:

$$dt = \frac{t^2}{3600 L} dv \quad (\text{see footnote})$$

The meanings of the various terms in this formula are:

dt = the permissible error in timing in seconds  
 t = time taken to run the course in seconds  
 L = length of course in statute miles  
 dv = permissible error in computed speed in miles per hour.

Note: To the mathematically inclined the derivation of this formula may be of some interest.

length of course in miles  
 v = speed in miles per hour =  $\frac{\text{length of course in miles}}{\text{time in hours}}$

$$v = \frac{L}{t} = \frac{3600L}{t}$$

differentiating we get

$$dv = -3600L \frac{dt}{t^2}, \text{ and } dt = -\frac{t^2}{3600L} dv$$

The significance of the negative sign is merely that a positive error in the time—i.e. a time reported as more than it really was—results in the computed speed being less than it actually was and vice versa. As this is self evident the negative sign has been dropped from the formula as it appears in the text.



The experimental three cylinder radial engine, the merit of which can only be determined by means of accurate speed records

It therefore follows that if on a one mile straightaway course records are to be made that are precise to within 0.07 of a mile an hour by boats making the run in approximately 60 seconds (60 miles an hour) the permissible error in timing may be computed as follows

$$dt = \frac{60^2}{3600} (0.07) = 0.07 \text{ seconds}$$

As will be shown in a subsequent article this will require very careful timing, not because there is the slightest difficulty in constructing recording devices which will register such small fractions of seconds as hundredths or even thousandths but because of the fallibility of the human observer operating it. In order to save the trouble of solving the above equation for a number of different speeds and conditions figure 1 has been prepared. This is a set of curves showing the relationship between errors in timing and the resulting errors in speeds in mile trials. Note that in order to accurately determine such speeds as those recently achieved by Gar Wood with Miss America VII on a mile course the timing must be accurate to within 0.03 seconds if the speeds obtained are to be within 0.07 miles

per hour. Such precision can be attained only with a chronograph operated electrically by observers at each end of the course and recording independently the observations of several timers, at least three, at each end of the course in order to eliminate personal errors as much as possible.

Where the speed of a vessel is obtained by timers on board her using stop watches which are snapped at the beginning and end of the course as defined by (Continued on page 102)

Note: Let  $v$  = speed of boat in miles per hour

$t$  = time in seconds

$L_m$  = length of the course in miles

$L_f$  = length of the course in feet

$\delta v$  = error in speed due to error in timing

$$= \frac{3600L_m}{t^2} dt$$

(see previous footnote for derivation of above formula)

$\delta v$  = error in speed due to error in length of the course.

$$v = \frac{3600}{t} \frac{L_f}{5280} = \frac{3600L_f}{5280t} = \frac{.682L_f}{t}$$

differentiating  $\delta v$  =  $\frac{dL_f}{t}$

$dL_f$  being the error in length of the course in feet

$$\delta v = \text{total error in speed} = \sqrt{(\delta v_t)^2 + (\delta v_f)^2}$$

$$= \sqrt{\left(\frac{3600L_f dt}{t^2}\right)^2 + \left(\frac{.682dL_f}{t}\right)^2}$$

See Goodwin's Precision of Measurements and Graphical Methods, Holman's Discussion of the Precision of Measurements, or any recognized treatise on precision, probability or the method of least squares for the reason for taking the square root of the sum of the squares of  $\delta v_t$  and  $\delta v_f$  instead of the simple arithmetic sum in computing  $\delta v$ .

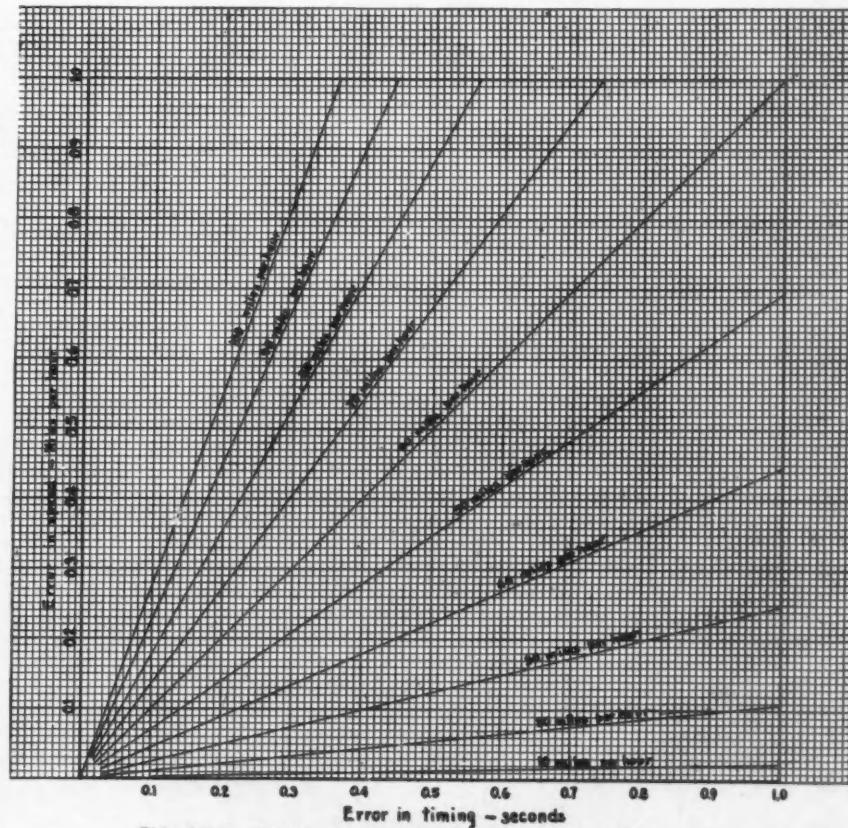
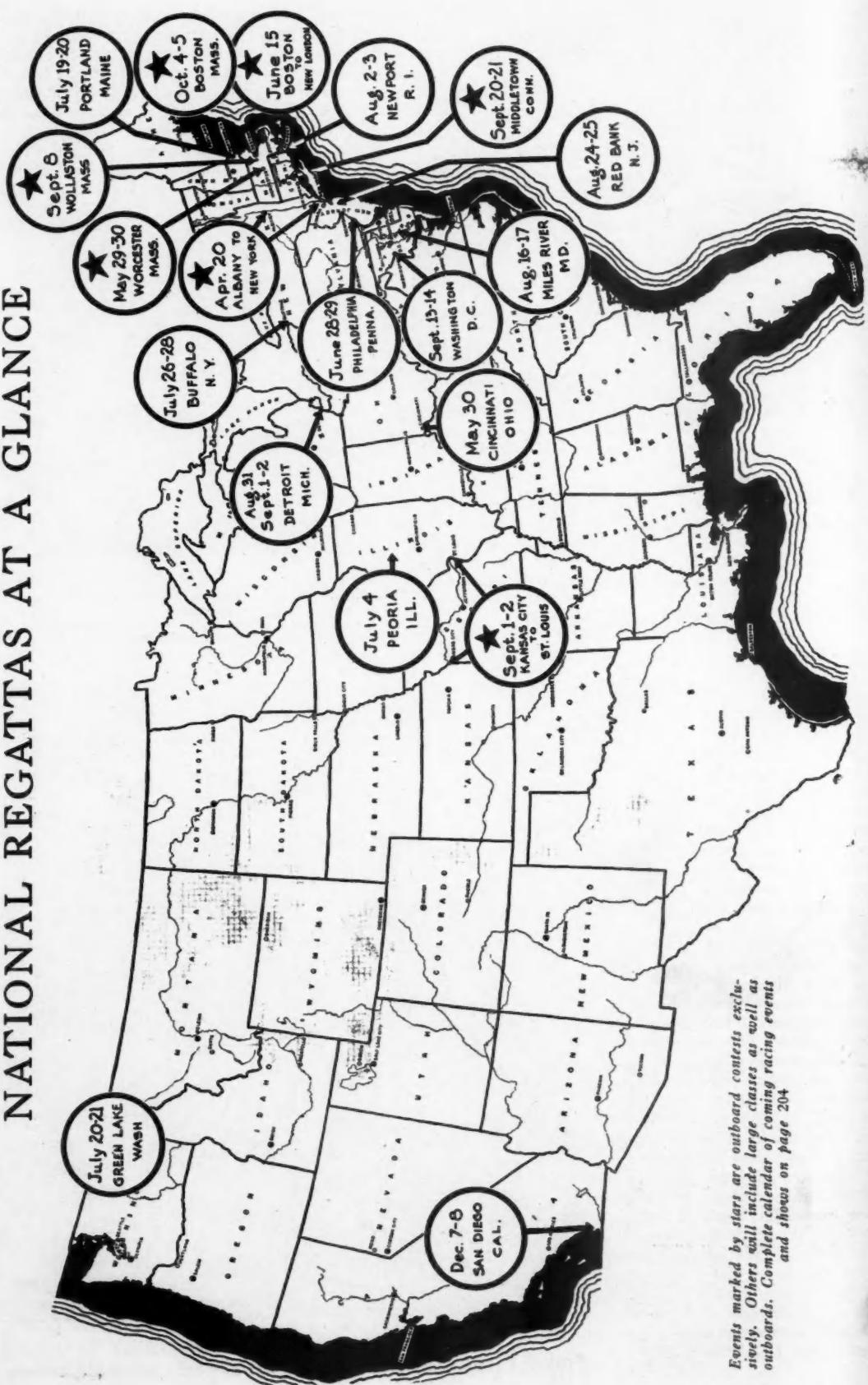


FIGURE 1 - Relationship between errors in timing and speed on measured mile

## NATIONAL REGATTAS AT A GLANCE



Events marked by stars are outboard contests exclusively. Others will include large classes as well as outboards. Complete calendar of coming racing events and shows on page 204



Photographs by M. Rosenfeld

*A typical trunk cabin cruiser of the type most popular today*

## WHAT THE NOVICE SHOULD KNOW

*First of a New Series of Articles Which Will Take the Beginner Through the Many and Varied Steps in Becoming Familiar With His Boat and Boating, With Maintenance, Service and Care Required*

### Part I

By W. H. KOELBEL

IT FREQUENTLY happens that a man who enjoys being on or about the water, and who envies his yachtsman friend for the satisfaction and pleasure which he derives from being the owner and master of a boat, no matter how small, decides that he would like to go in for this finest of sports and become a boat owner himself. He visualizes a wonderful means of getting away from all the cares and worries of every-day life, and an opportunity to escape from the dusty, crowded highways, which have heretofore supplied his recreation. In his mind's eye he sees pictures of endless carefree days afloat, cruising about in strange waters, his knotty traffic problems left far behind, with nothing to trouble his peace of mind and disturb his enjoyment of life.

But then he hesitates and considers the possi-

bility of having other problems arise—problems with which he is entirely unfamiliar—and the necessity of learning all the rudiments and fine points of the art of boat handling. It is at this point that he must be made to realize that the new problems are not as involved as what they might seem and that all the rosy pictures he has painted are not products of the imagination alone, but are typical of the actual experiences which every boatman enjoys, and which make boating the best and cleanest sport on earth. He needs a helping hand to get the information which he must have for the satisfactory operation and care of his boat and he must get it in a non-technical form, which he can readily understand. Furthermore, he does not intend to become a naval architect or marine engineer and therefore is not interested in long dry volumes of theoretical discussions



*The most popular sailboat class, the Star class. These boats are inexpensive and furnish ideal support for many young sailors*



*A raised deck cruiser of popular style frequently encountered on the water. The cabin is below and the large cockpit furnishes outdoor space*

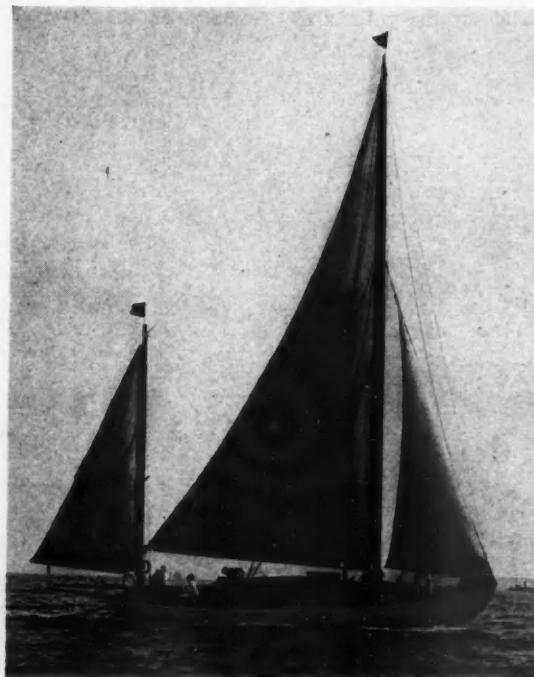
which get him nowhere in the practical handling of his boat, but wants rather a concise and simple summary of the more important facts which other boatmen have already learned from experience. Having once learned the fundamentals and actually handled his little craft for a season or two, there is nothing to prevent him from carrying his boat education as far as he wishes, but that advanced education is beyond the scope of these articles. So let us keep in mind the fact that it is to supply the need of the novice for only the more important practical information, that these articles have been prepared. If we succeed only in helping him to select a boat which is suited to his requirements, get him afloat and teach him how to care for it and keep it out of trouble, we shall feel that they have served their purpose.

At the outset there arises the question—what type of boat do I require? Shall it be a motor boat, a sailboat, or a compromise between the two. This, of course, is largely a matter of personal taste, although the use to which it will be put will have a bearing on the selection. In these articles we are chiefly concerned with the motor boat although a brief discussion of the types of sail boats will be in order.

Motor boats might be

classified under the three broad headings—cruisers, runabouts and racing boats. If the prospective purchaser intends to use his boat for extended overnight trips and for fishing, hunting, etc., in all kinds of weather and in places where he may encounter rough water, then the cruiser is best adapted to his needs. If he proposes, on the other hand, to make short day runs in protected waters at a better turn of speed, the runabout will make a satisfactory craft. The racing boat is a more or less specialized type and will meet the demand for a hull capable of extreme speed, designed primarily for racing.

In the cruiser class, we have two general types to consider — raised deck and trunk cabin. Perhaps the best way to approach a discussion of these is to call attention to the advantages and disadvantages of each type, leaving the buyer to decide for himself which offers him the more suitable craft for his purposes. In case the reader should be unfamiliar with the appearance of these types, he can get a better impression of them from the illustrations than from a word description. Raised deck is practically self explanatory indicating that the sides of the boat are built up higher than the main part of the hull and then decked right across. In the



*A yawl of fairly large size makes an easily handled sailing craft. Auxiliary engines are often carried*

trunk cabin model only a portion of the deck is raised, allowing deck space forward, and at each side, and the raised part of the deck becomes the cabin top. This style is also referred to as a hunting cabin.

Checking one type against the other for advantages and disadvantages, we find arguments for and against each and the advantages of one become the disadvantages of the other and vice versa.

Taking the raised deck type into consideration first, we find that one of its desirable features is that of added freeboard, that is, higher bow and sides, which enable the boat to face the seas better. At the same time more space is secured in the cabin for three reasons. First the space in the bow is utilized; second, no room is lost at the sides of the cabin; and third greater headroom is possible because the deck beams can be crowned (curved) more without being unsightly. Construction of the raised deck is simpler than the trunk cabin, and is cheaper at the same time. Inasmuch as the deck beams in the raised deck type are carried right across the full width of the hull, the construction is stronger and the fact that a troublesome joint between deck and cabin side is eliminated makes it more water tight. A greater amount of deck space is provided than is possible with the trunk cabin type. In the matter of seaworthiness, the two factors of higher freeboard and greater structural strength combine to give it an advantage in this respect. As a final consideration the raised deck seems to be on the

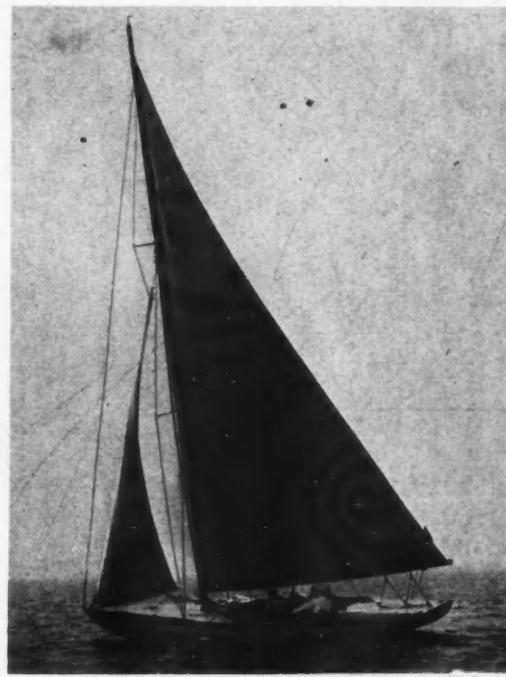
whole more popular than the trunk cabin and as a result is likely to be worth more in case of resale and more readily marketable.

As for the disadvantages, the principal one is the matter of ventilation. This is not to say that adequate ventilation cannot be secured with a raised deck, as the fitting of ventilators and sky-lights will make the average boat quite comfortable. Higher sides on this type raise the center of gravity and increase the tendency to roll in a beam sea. Decks being higher and the fact that there is little to steady a person on deck argue against the raised deck when it is necessary to go forward in a heavy sea. This same factor must be taken into consideration in the matter of handling lines and anchors on deck. The two last named items are generally taken care of by providing a hatch forward by which a person may reach the bow from inside and a sunken forward deck or cockpit for the handling of ground tackle. Two minor considerations include the fact that the deck affords little accommodation for

parties in day sailing, and the difficulty of making a landing if the cockpit floor is low as the helmsman's vision may be partly obscured. The last of course can be easily overcome by raising a portion of the floor.

We now come to a consideration of the advantages of the trunk cabin type. Better ventilation is unquestionably the outstanding feature here, as this type is not limited to port holes but can make use of good sized long windows.

(Continued on page 166)



*A sailing sloop in the six meter class which is used for racing*

E. Levick

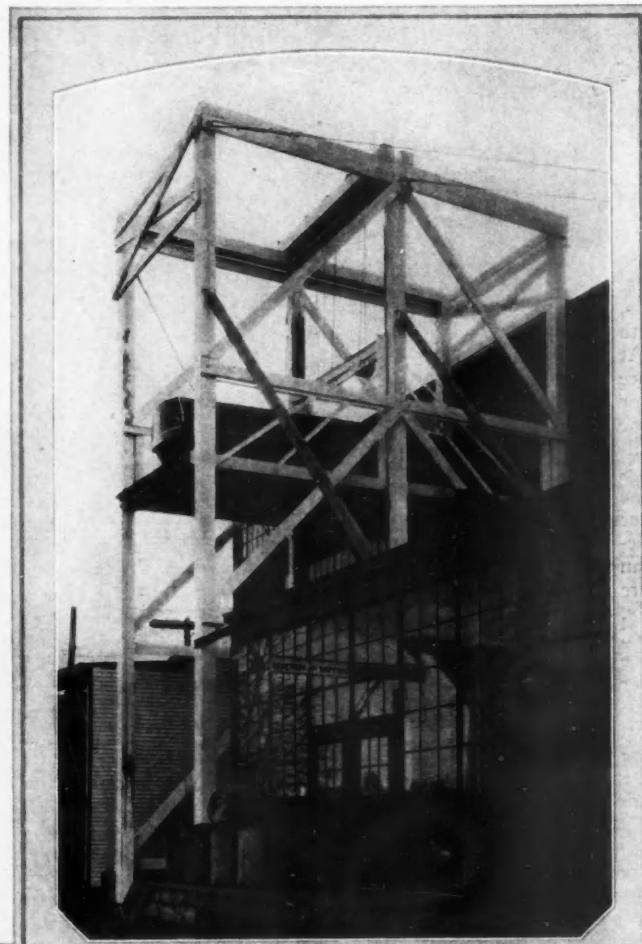


*The fast runabout is one of the most popular motor boat styles today and countless numbers are being built and put into service*

# SPEEDING UP BOAT SERVICE

*Special Equipment Installed in Boat Plant Facilitates Handling of Runabouts*

Boats are lifted from the water by a special hoist, loaded on small cars and run to the service building. Here an ingenious elevator raises them to any of the three stories of the building as required by the work in hand. Joiner shops and paint departments can all be reached very quickly



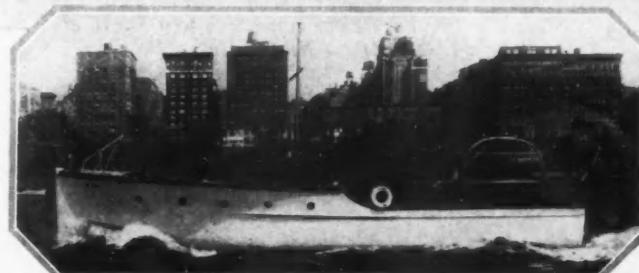
Facility in handling boats out of water is a great factor in effecting economies in a boat plant. Lyon Tuttle at City Island, N. Y., have installed most excellent equipment for expediting this phase of the yard work and boats can be handled readily to any part of the plant



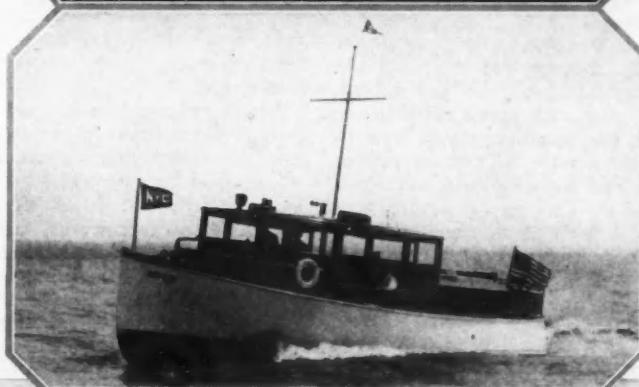
## SMART BOATS USE STERLING



*Margo*, a 60-footer designed by Henry C. Grebe & Company and built for B. A. Massee of Chicago by the Barger Boat Company and does 12½ miles with her six cylinder Sterling Chevron

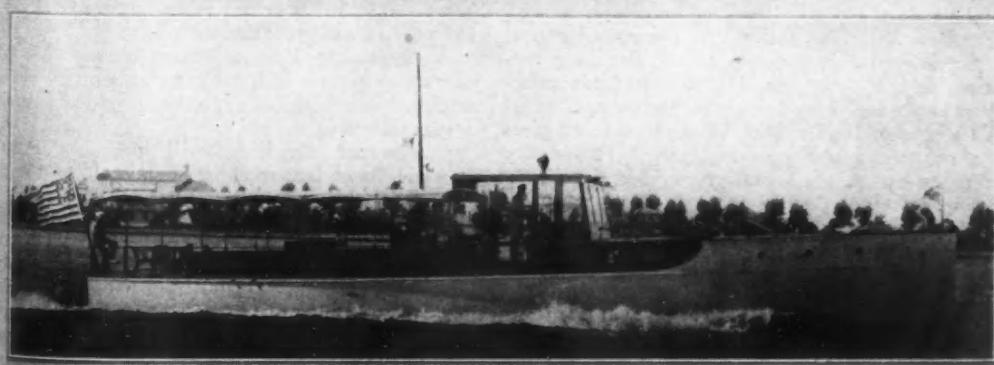


*Jedge*, a 38-foot Matthews standardized cruiser owned by B. W. Lawson of Cincinnati and which is able to do 16 miles with her six cylinder Sterling Petrel engine



The 39-foot cruiser which was built for Commodore C. De Forest Cummings of the Buffalo Yacht Club by Frederic P. Humphreys and which is powered with a six cylinder Sterling Petrel engine yielding 12 miles speed

*Poule d'Eau II*, a fast 68-foot cruising yacht designed and built by Geo. Lawley and Sons Corp. for Frank Goodyear of Buffalo. Two six cylinder Sterling Dolphins drive her 21 miles



# TIME PAYMENTS IN BOAT BUYING

**A**PPPLICATION of organized time-payment methods to the sales of motor boats becomes a fact with the beginning of the 1929 boating season. While still in the early stages, installment financing for the boating fraternity is expected to develop along lines that are now almost a standard practice in the automotive, radio, electric appliance, music, and other industries.

For fifteen years and more, financing of automobile purchases has been an accepted procedure. Out of the practice have grown many large financing companies. Gradually other fields were entered. But until last summer no one of the nationally recognized financing corporations would even consider the rapidly growing boat industry.

Officials of financing corporations are conservative. They have to be, for theirs is a business where the fractions of pennies must be counted. Earnings of the major financing corporations show that their profits are well under 2 per cent annually on their total volume of business.

Although several builders have offered financing plans in the past, it was the Chris Smith & Sons

Boat Works that opened the way to the financing of boats in a larger way. Perhaps the merchandising policies followed by Salesmanager John E. Clifford, who turned to boating after making his mark in the automobile selling field, had something to do with it. In any event, a deal for a series of test installment sales was made last summer between the Chris Smith & Sons Boat Works and the Commercial Credit Companies of Baltimore. A limited number of Chris Craft purchasers were permitted to buy on time. No difficulties of any kind were encountered. In fact, the statistics of these early experiments showed that boatmen were first-class credit risks.

The machinery for installment financing varies somewhat with conditions and with the different companies. In the main, however, certain basic principles are followed; the parties involved consisting of (1) the purchaser, (2) the dealer, (3) the manufacturer, (4) the insurance company, (5) the financing corporation, and (6) the financing corporation's stockholders, banks and other sources of borrowings.

When a man buys a boat his first payment gives him a substantial equity in his craft. This equity protects the dealer, the manufacturer, and the financing company against loss in case subsequent payments are defaulted.

In event of fire, sinking, or other marine hazards, the insurance company must be prepared to step in and replace the financed boat.

Back of the finance corporation are stockholders, banks, and other sources of cash supply whose interests must be protected by the finance corporation.

The finance business, viewed in its broader aspects,

takes on the character of a nationwide service. The installment purchasers, in a sense, buy service along with the interest they pay for the use of the borrowed money. This service includes collecting and distributing their monthly payments, arranging for their insurance, holding down finance charges by re-possessing and reselling the goods not paid for, and many other detailed jobs that have to be done when partial payments enter a transaction.

A man might buy a boat in Boston, and ship it to San Diego. Until it is fully paid for, the finance corporation through its far-flung network of branches and district offices, keeps an eye on the boat and collects the payments. When things go wrong, the finance company must constantly be prepared to clean up the deal with a minimum loss and delay all around.

Meanwhile, because the financial load of an installment sale has been removed from the shoulders of the dealer and the manufacturer, the dealer and manufacturer can use their cash capital for their own respective businesses. This is important; particularly important to the growth of the boating industry just now when

volume production and mass sales of stock models is just beginning to stimulate wide use of American waterways.

"It is estimated in the automotive trade that the general financing of motor cars has increased production to a point where between 20 to 30 per cent is saved by every automobile buyer," said F. M. Nicodemus, vice-president of Commercial Credit Companies. "In other words, financing has brought the cost of \$1,000 automobiles down to between \$700 and \$800 because financing has made it possible for manufacturers to build and sell millions of cars that otherwise could not have been produced. Approximately six out of every ten motor cars turned out of the factories today are sold on the installment plan.

"Financing may be expected to help the sale of boats just as it has helped to bring the motor car into immense volume production."

A Chesapeake Bay yachtsman himself, Mr. Nicodemus combines a boatman's enthusiasm for the sport with a business man's appreciation of installments as a stimulus to sales.

"Organized financing will probably exert its greatest direct influence," he predicts, "on the development of nationally-advertised stock boats.

"One of the requirements of our company in financing work is that the financed boat have a ready market in case of re-possession. There may be exceptions, perhaps, but certainly at the present stage of boat financing we would consider the development of a partial-payment plan as a rule only for companies building stock models.

"Indirectly, even with (Continued on page 176)

# A SERVICEABLE SMALL BOAT

*All Large Boats Need Tenders and the Punt Described  
Can Be Easily and Quickly Built at Low Cost*

By E. G. MONK

**T**HIS 9 foot 9 inch by 3 foot 9 inch punt was built last spring for use as a dingy for a cruiser, and it has proven very satisfactory and serviceable. It is about the cheapest and simplest boat that can be built, the total cost of lumber, paint, and all other materials being but \$7.90. It took but a day and a half to build and was all done with hand tools. Short cheap pieces of lumber can be used for the bottom, seats, and ribs, which is a feature that keeps its cost down.

The boat is very easy to row and tow and is a good boat to beach on account of the shape of the forward end. It will carry four or five passengers nicely and although light will stand plenty of hard usage.

The construction is so simple that a How To is hardly necessary. A little explanation, however, may stand the builder in good stead. The following lumber list will build the boat:

The species of lumber used will depend on the locality in which the boat is built and it is not necessary to stick to those mentioned in the list.

**SIDES:** 2 pc.  $\frac{5}{8}$  by 16 inches by 10 feet, Cedar, Spruce, or White Pine.

**TRANSOMS:** 1 pc. 1  $\frac{1}{16}$  by 14 inches by 6 feet, Spruce, Fir, Pine or Oak.

**BOTTOM AND SEATS:** 40 feet  $\frac{3}{4}$  by 7  $\frac{1}{2}$  or 9  $\frac{1}{2}$  inch, Cedar, Spruce or Pine.

**FLOOR BATTENS:** 2 pc.  $\frac{3}{4}$  by 2  $\frac{3}{4}$  inches by 8 feet, Spruce, Fir or Pine.

**FLOOR BATTENS, CENTER:** 1 pc.  $\frac{3}{4}$  by 2  $\frac{3}{4}$  inches by 10 feet, Spruce, Fir or Pine.

**CHAFING STRIPS GUNWALE AND SEAT RISERS:** 6 pc.  $\frac{3}{4}$  by 1  $\frac{1}{2}$  inches by 10 feet, Spruce, Fir or Pine.

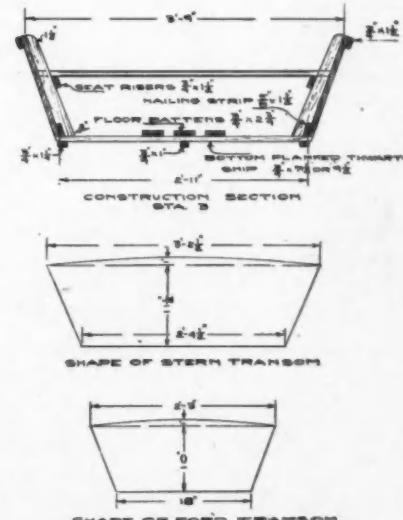
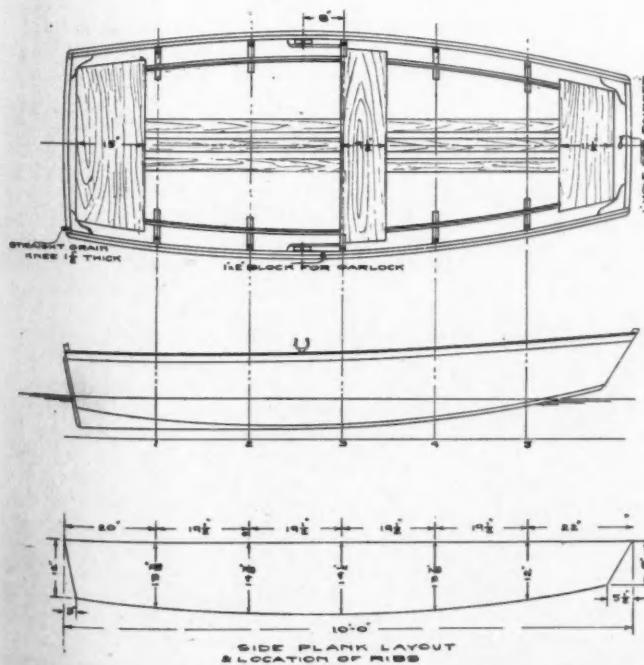
**SKEG:** 1 pc. 1  $\frac{1}{16}$  by 4 inches by 4 feet, Spruce, Fir or Pine; 1 pc.  $\frac{3}{4}$  by 1 inch by 6 feet, Spruce, Fir or Pine.

**RIBS:** 1 pc.  $\frac{3}{4}$  by 3  $\frac{1}{2}$  inches by 8 feet, Spruce, Fir or Oak.

The lumber for the sides must be clear but the builder can save money by buying a cheap grade for the balance, especially for the bottom which is in short lengths, making it easy to cut between knots, etc. If the builder has difficulty in getting 16 inch lumber for the sides two narrower pieces will do, notching in a batten over the seam or making use of the simple dory lap. The transoms if necessary can be of two pieces using waterproof glue in the joint.

First, saw out the sides as per plan and from the piece left over saw out a strip 1  $\frac{1}{2}$  inch wide from the curved side of the piece. Nail this strip to the bottom and inside of the side board, thus making the nailing strip shown on the construction section. Next, saw out the ribs (by taking advantage of their taper the 3  $\frac{1}{2}$  inch board will make ten ribs nicely), and notch them over the nailing strip and fasten them to the side board with 4d galvanized nails. The stern transom is then gotten out and fastened

(Continued on page 150)



*A 10 foot punt which can be easily built by the amateur. Follow dimensions as drawings are not to scale*

# FLASH—A FAST OUTBOARD

*A Speedy Little Hydroplane Adapted to Class B and C Engines  
Simply Designed and Easy to Build*

Designed Especially for MoToR BOATING

By C. A. NEDWIDEK

**S**MALL outboard engined hydroplanes are in great demand among the coming generation of yachtsmen. Speed is what they want and they will be content with nothing but the fastest boats. Our design this month is for a smart little hydroplane adapted to Class B and C engines. It is not suited to the larger engines and would require the addition of squatboards on the hull aft to provide increased planing area. The construction has been kept as simple as possible so that no difficulties should be encountered in the work. A great deal of pleasure and recreation will be derived from the work of building this little job.

The lines were worked up with a station at each frame, which saves the necessity of getting out moulds. The frames themselves can be worked right out and serve as moulds. The dimensions for these are given on the offset table. Make allowance for the thickness of the planking. The side and bottom frames are to be butted at the chine, instead of lapping by. They are fastened at these corners, with an oak corner piece  $\frac{1}{2}$  inch thick. The side frames are to be notched out for the chines, the bottom members for the keel, and seam battens. The transom is to be of mahogany  $1\frac{1}{4}$  inch thick. A backing piece is to be fitted on the inside of the transom, to be of spruce  $\frac{5}{8}$  by 1 inch. This will furnish backing for the ends of the plank.

Work out the stem, of oak, 2 inches thick of a shape as shown on the construction plan. Scarphed into the forward keel. Siding of rabbet line to be  $1\frac{1}{2}$  inches. This will allow for a better backing for the planks. The forward keel is to be of oak, 3 inch sided at step and tapered to 2 inches where scarphed into stem. Forward keel to be rabbeted to take planking. After keel batten to be of oak,  $\frac{3}{4}$  by 3 inch oak, beveled to fit inside of planking.

Step, located on Frame No. 5. Step transom to be of mahogany  $\frac{3}{8}$  inch thick. After keel to be carried forward about 6 inches and fitted as shown on the inboard construction plan.

Transom knee fastening, transom to keel, is to be oak, 1 inch thick.

Floors to be fitted on forward frames, to be of spruce,  $\frac{1}{2}$  inch thick.

On the lines it will be noticed that the radii for all the deck beams are given. The beams at each respective point are to be sawn to this radius. The beams in the way of the cockpit can be left full width as they then will act as cross ties for the frames when setting the boat up.

When setting up the frame work, be sure and have a level floor and take great care to set up the frames in their proper positions in a fore and aft direction and see that they are true and perpendicular to the base line, and to the center line. Of course, the keel, stem, step and transom, should be set up in their respective places and properly shored rigid.

Frames to be fastened to keel with No. 8 brass screws about  $1\frac{1}{2}$  inch long.

Chines to be worked out and put in place. After chine to be carried forward to frame No. 2 as shown.

The bottom frames can be marked out for the

notches to take the seam battens, located to suit plank widths. Battens located to center over plank seam.

Clamps to put in place, to be of spruce  $\frac{3}{4}$  by  $1\frac{3}{4}$  inches. Fastened to frame heads with No. 8 brass screws about  $1\frac{1}{2}$  inch long.

Planking is to be of mahogany, sides to be  $\frac{3}{8}$  inch thick and bottom  $\frac{1}{2}$  inch. Plank fastening No. 8 brass screws, 1 inch long. At chine, stem and transom  $\frac{7}{8}$  inch long.

Cockpit opening can be cut, and fore and after fitted to beam ends to take coaming.

Decking can be either of veneer or mahogany strip planking covered with canvas.

Coamings of mahogany  $\frac{3}{8}$  inch thick.

A steering wheel to be installed in forward end of cockpit. To be of type with controls for engine attached.

The seat shown is nothing but a slat seat built as light as possible, carried on risers fitted on frames at sides, and perhaps a stanchion in the center carried down to the keel which will tend to stiffen it and take out some of the spring.

MoToR BoatinG has published some excellent books of boat designs and building instructions which amateur builders will find useful. A circular describing these will be sent on request. Readers who plan to construct this boat can also secure blue print copies of the drawings to a scale of  $\frac{3}{4}$  inch to the foot at a moderate cost. Write the Editor, MoToR BoatinG, 959 Eighth Avenue, New York, N. Y.

## SPECIFICATIONS

**DIMENSIONS:** Length overall 11 feet. Beam 4 feet.

**STEM:** White oak, sided 2 inches, shaped as shown, rabbeted to take planking. Scarphed to forward keel.

**FORWARD KEEL:** White oak, moulded  $1\frac{1}{2}$  inches, sided 3 inches at step and tapered to 2 inches at stem.

**AFTER KEEL BATTEN:** White oak,  $\frac{3}{4}$  by 3 inches, fitted inside of bottom planking.

**TRANSOM:** Mahogany,  $1\frac{1}{4}$  inches thick, fitted with backing strips. Transom knee, white oak 1 inch thick. Knees fitted on clamps. Tieing same to transom to be of oak,  $\frac{5}{8}$  inch thick.

**CHINES:** Of spruce,  $\frac{3}{4}$  by  $1\frac{1}{2}$  inches.

**FRAMES:** Of spruce, sided  $\frac{1}{2}$  inch, side frames moulded 1 inch at head and 2 inches at chine. Bottom frames moulded 2 inches. Corner pieces of oak  $\frac{1}{2}$  inch thick.

**CLAMPS:** Spruce,  $\frac{3}{4}$  by  $1\frac{1}{2}$  inches.

**SEAM BATTENS:** Spruce  $1\frac{1}{2}$  by  $1\frac{1}{2}$  inches.

**DECK BEAMS:** Of spruce,  $\frac{1}{2}$  by  $1\frac{1}{4}$  inches, sawn to crowns as given on lines.

**SIDE PLANKING:** Mahogany  $\frac{3}{8}$  inch thick.

**BOTTOM PLANKING:** Mahogany  $\frac{1}{2}$  inch thick.

**DECKING:** Either 3 ply veneer, or  $\frac{1}{4}$  inch mahogany covered with canvas.

**COAMINGS:** Of mahogany  $\frac{3}{8}$  inch thick.

**SHEER MOULDINGS:** Of mahogany  $1\frac{1}{4}$  inch half oval.

**SEAT:** Of  $\frac{3}{4}$  by 3 inch spruce slats.

**FLOORS:** On forward frames  $\frac{1}{2}$  inch spruce.

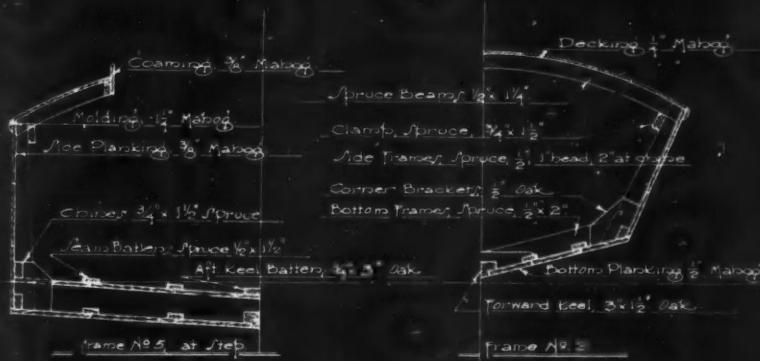
# MoTOR BOATING'S Build A

Design

B

C A

S



# Boat Series

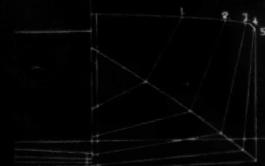
Designed Especially for

**DOCKING**

by

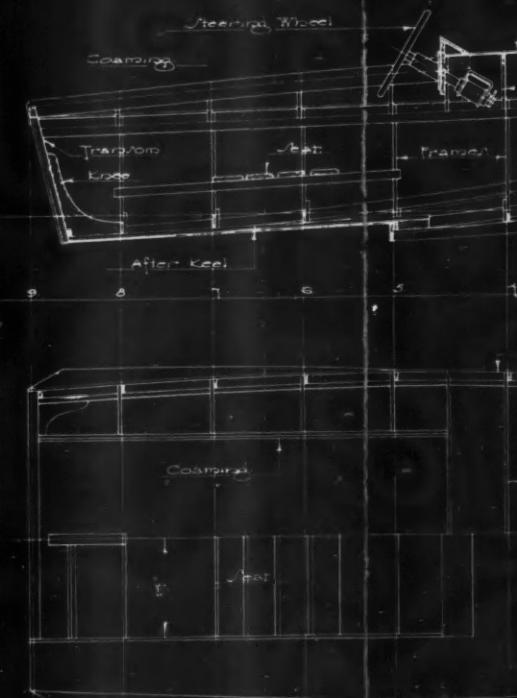
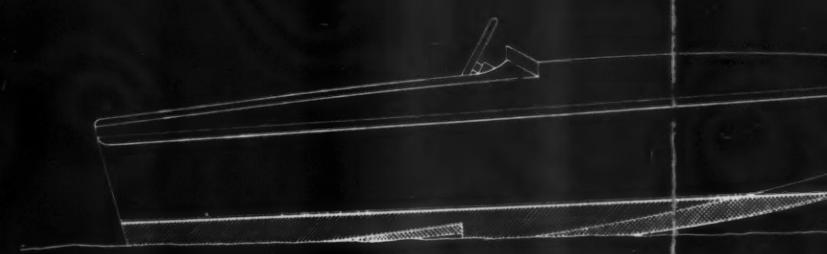
NEDWIDEK

Scale:  $\frac{1}{2}$  In. = 1 Ft.



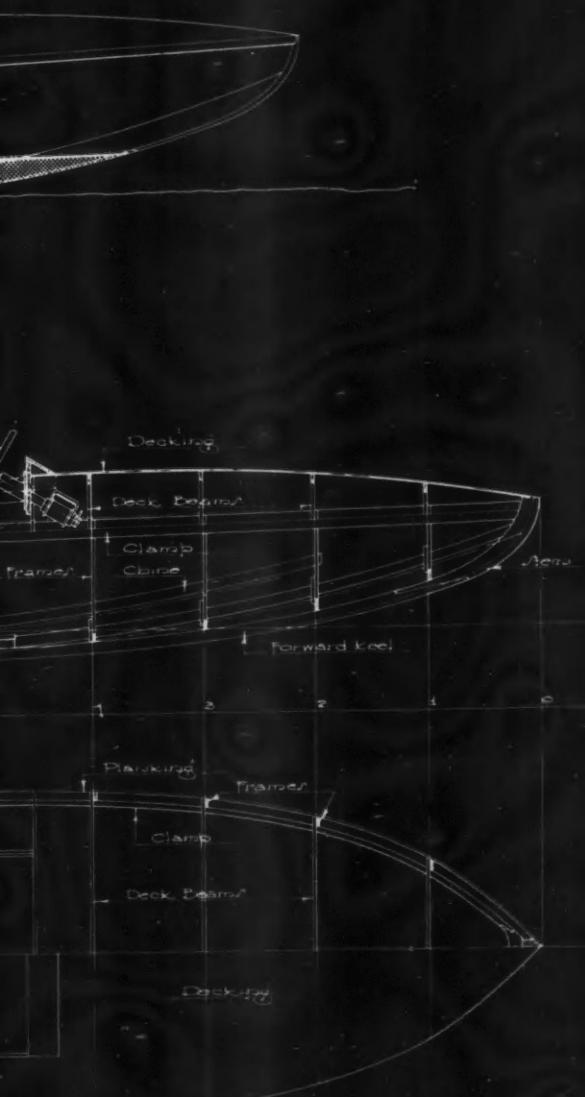
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<u>STRAIGHT LINE</u>								
3-2	1-4-0	1-0-6	0-0-4	0-8-7				
1-3	1-0-1	0-10-1	0-8-6	0-7-7				
			1-0-0	0-10-5	0-0-4	0-8-5	0-8-2	
				0-10-2	0-9-6	0-0-1	0-8-4	0-8-2
-1	1-7-3	1-10-2	1-11-2	1-11-3	1-11-2	1-10-7	1-10-2	1-9-5
1-7	1-2	0-1-6	5-1-9	5-1-3				
					1-11-3	2-0-2	2-0-3	2-0-3
						2-0-2	2-0-3	2-0-2

DIMENSIONS GIVEN IN FEET, INCHES, AND EIGHTHES TO  
HULL LINE



# LASH

## An oarboard Hydroplane





# SMALL MOTOR BOATS

*Their Care, Construction and Equipment*

## A MONTHLY PRIZE CONTEST CONDUCTED BY MOTOR BOATMEN

### *Questions Submitted for the June Prize Contest*

1. Describe and illustrate a simple, compact arrangement for keeping necessary books and magazines in good condition on a cabin boat.  
(Submitted by E. F. C., Cambridge, Mass.)

2. Describe an electrical system for a small boat, and indicate an effective lighting arrangement for the entire craft.  
(Submitted by R. R. H., Brooklyn, N. Y.)

### KEEPING THE BILGE CLEAN

*There Seems to Be Only One Solution to This Question and That Is to Use Sufficient Time and Energy to Do the Work*

Answers to the Following Question Published in the February Issue

What method have you found most satisfactory for cleaning the bilge and preventing the odors usually arising therefrom?

#### METHOD FOR CLEANING BILGE

(The Prize-Winning Answer)

CLEANING the bilge of any boat, large or small, is a miserable task and in some cases a difficult one. Too often this item in the list of things to be attended to in the spring overhauling is neglected because it is a mean job and because the bilge is hidden from sight. A foul bilge is a constant menace to your boat and jeopardizes your safety on the open water.

The easiest and most satisfactory way to thoroughly clean the inside of your craft is to tackle the job when the boat is on the cradle or ways for the spring outfitting. Most boats are fitted with removable flooring. This and any other loose pieces that normally seal the bilge should be removed and well cleaned for a coat of paint.

Before starting the actual cleaning operations all inside work that will produce any debris should be completed and the engine base oil drained, if necessary, and all grease and muck removed therefrom.

The inside of the craft should be made as nearly dry as is possible. Then commence at the end of the boat which sets highest and with a painter's broad knife scrape all muck and loose paint from the planks and frames from as far as you can reach up under the lining down to the keelson. After all loose material is removed the oil-soaked planks and beds around the engine should be scrubbed with distillate. A stiff scrubbing brush and a pair of rubber gloves are handy for this.

Next dissolve some strong soap powder in a bucket of boiling water and scrub all accessible surfaces vigorously with this solution by means of a stiff broom

### RULES FOR THE PRIZE CONTEST

READERS are urged to consider the above questions for the June issue, and send answers to them to the Editor, MoToR BoatinG, 57th Street at Eighth Avenue, New York, N. Y. Answers should be (a) in our hands on or before April 25, (b) about 500 words long, (c) written on one side of the paper only, (d) accompanied by the senders' names and addresses.

The names will be withheld and initials used.

QUESTIONS for the next contest must reach us on or before April 15. The editor reserves the right to make such changes and corrections in the accepted answers as he may deem necessary.

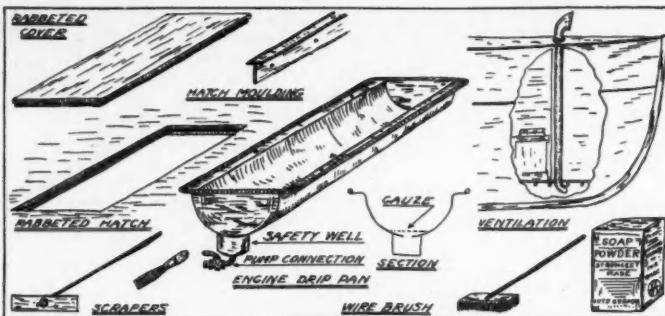
The prizes are: For each of the best answers to the questions above, any article or articles sold by an advertiser advertising in the current issue of MoToR BoatinG of which the advertised price does not exceed \$25, or

a credit of \$25 on any article which sells for more than that amount. There are two prizes—one for each question—but a contestant need send in an answer to only one if he does not care to answer both.

For answers we print that do not win a prize we pay space rates.

For each of the questions selected for use in the following month's contest, any article or articles sold by an advertiser advertising in this issue of MoToR BoatinG of which the advertised price does not exceed \$5, or a credit of \$5 on any article which sells for more than that amount.

All details connected with the ordering of the prizes selected by the winners must be handled by us. The winners should be particular to specify from which advertisers they desire to have their prizes ordered.



*W. B. M. states that a drip pan under the engine helps to keep the bilge clean.*

or brush. Before the soap solution has a chance to dry, the entire inside of the hull should be washed out with water under high pressure from a hose. Care should be taken to see that when the stream of water is directed up between the frames that it does not spout out somewhere and damage things which are not waterproof.

It is assumed that a hole has been provided to drain off the water. Most boats have plugs. If yours has not, a two inch diameter hole should be bored at the lowest point of the hull. This hole is to be plugged as shown in sketch No. 1. All metal pieces are to be brass or bronze and a gasket made of canvas smeared with white lead.

The writer has effected such a cleaning while the boat was afloat, using a bilge pump to carry off the water used for the cleaning. After the hull has been aired sufficiently to thoroughly dry the inside, a coat of fairly good paint should be applied and the flooring replaced.

The fire hazard may be greatly reduced by the use of a back-fire trap and a pan under the motor and gear. This pan should be so arranged that it is an easy matter to sponge out gasoline and oil which drips into it.

In a recent issue of MoToR BoatinG there was published an article describing a method of ventilating the hull by boring holes through the lining between frames. While this method will prevent damp rot of the timbers, it will at the same time make a cabin unlivable. Sketch 2 shows a scheme of forced draft to air the bilge under the flooring and lockers. It should be remembered that a good ventilating system may prove dangerous in the event of fire. In the absence of a reliable fire extinguishing system it is advisable to provide a cut-off in the vent ducts which may be operated from the deck.

There should be one or two regulation ship ventilator heads located on the forward deck. They should be of a size that

will be in keeping with the rest of the ship. Located on the after deck or trunk cabin there should be one or two syphon vents such as the one shown in the sketch. This could be made by any good sheet metal worker and could either be of spun metal or of flat sheets, developed and the joints brazed or riveted. This will produce a draft through the hull which will rid the cabin of that undesirable odor of burnt oil and stale air. Sketches 3 and 4 show how the space between skin and lining may be vented to the outside. Sketch 3 shows the most desirable method and the next time your boat needs a new it would be an easy matter to provide

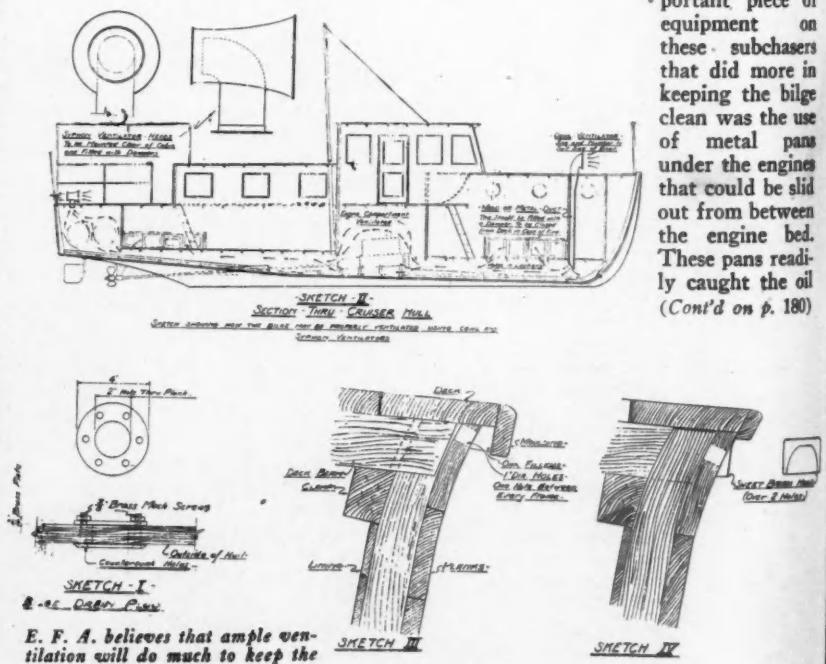
rubbing rail it would be an easy matter to provide the additional width of deck pieces and moulding that is required. A one inch hole is bored through the top stroke next to a frame, the holes are covered with copper screen. Then fillers of oak— $1\frac{1}{2}$  inch by one inch by about one foot six inches are nailed between holes, and the moulding is then nailed or screwed in place.

E. F. A., Oakland, Cal.

## DRIP PANS UNDER ENGINES

FOR the most satisfactory method of cleaning the bilge and preventing the odors usually arising therefrom may we take a lesson from the British navy with its submarine chasers during the late war. It was required of these small boat crews to flood the bilge and pump them dry every day while the boat was in service. This method was found very satisfactory in keeping the bilge clean and did not give an opportunity for any dirt or grease to accumulate with the accompanying odors. The matter of flooding the bilge will depend on equipment of the individual boat. It was accomplished by a motor driven pump in connection with a hose on the above mentioned boats.

Another important piece of equipment on these subchasers that did more in keeping the bilge clean was the use of metal pans under the engines that could be slid out from between the engine bed. These pans readily caught the oil (Cont'd on p. 180)



*E. F. A. believes that ample ventilation will do much to keep the bilae sweet*

# NAMEPLATES FOR BOATS

*Many Useful Suggestions for Making and Securing*

*Neat Name Devices to Small Boats*

Answers to the Following Question Published in the February Issue

What is the most satisfactory nameplate taking into consideration ease of painting hull without interfering or having to renew it?

## NAME PLATES FOR BOATS

(The Prize-Winning Answer)

**I**T is required that all motor boats bear a number on each bow, and while not required it is suggested that the name and hailing port appear on the stern. Most of us are glad to carry out this suggestion as it is desirable to have a name on the boat and a well executed name adds to the appearance of any boat. At one time it was a hobby to paint the name on mahogany boards and screw one to each bow. Sometimes the lettering was done in gold leaf and nicely shaded in a contrasting color. While the name looked well on the polished mahogany the boards were not exactly ornamental to the boat and the custom soon lost out. The natural finished mahogany transom offers a good place for the display of the sign painter's art and if done in coach colors and kept well varnished will last for years. The name painted on the bows and transom looks well but it takes a sign painter to do a neat job, which, unless on varnished wood must be done over each year. Gold leafed and painted letters on white paint are fine if you can cut around them at each painting. Transfer letters are not so bad and no special talent is required to place them. A stenciled name is easily put on and the space covered by the ties in the stencil can be filled in with a small brush. However, a stenciled name on a boat looks about as well as a poor job of lettering.

Brass letters or a name plate of sawed brass looks well until the brass tarnishes. Then polishing makes a mess of the white paint and if polished often the paint will be worn off around the name. The flare of the bow or the curve of the transom often prevents the brass letters from lying flat against the wood at all points.

Since the numbering act went into effect the name on the bows has been generally displaced by the number in 3 inch figures as required. The name and hailing port still hold their place on the stern. The most practical method for the owner to put the name and hailing port on the stern and the number on the bows is to attach metal letters to the hull. You can buy these metal letters and figures at marine supply stores.

Composition letters may be purchased from any house dealing in pattern making supplies. You can make your own letters by cutting them from sheet lead with a wood chisel and a sharp jack knife. While not necessary, a bevel of about 60 degrees on the edges of the letters makes a neat finish. The stock letters at the motor boat supply dealers are mostly of a spurred design which may not appeal to many of us. The composition letters may be had in several styles, all made beveled so that they will leave the sand clean, in moulding.

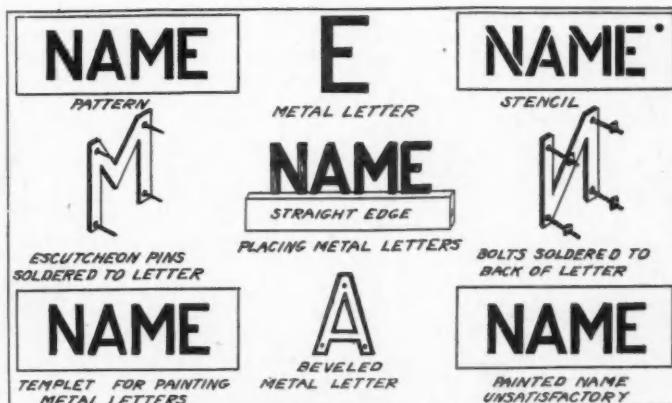
In making your own letters, lay out on heavy tough paper, plain straight letters similar in design to the figures recommended for the number. Lay these out properly spaced so that the pattern from which the letters are cut can be used for a guide in placing the letters and a guard in painting if the name is not removed for enameling. Three inch letters to correspond with the number are suggested for the name, with letters about one half this height for the hailing port.

Cut the letters from the pattern with a sharp knife, using a piece of glass to cut on. Lay the letters on the sheet lead, mark the outline and cut out the letters. Drill and countersink for flat head brass screws.

To attach the letters without the fastenings showing, solder small flat head brass stove bolts to the back of the letters. If the letters are drilled for screws, mark for the holes

through the transom and then solder the bolts in the countersinking, filling the slots in the bolt heads with solder and filing off flush. Drill an easy fit for the bolts, which when the nuts are set up will hold the name securely in position. Where the letters are not to be removed, escutcheon pins may be used instead of bolts. Shellac the letters two coats and enamel dark blue or other color contrasting with the hull.

Paint the hull before attaching the name. In placing the name, use the pattern as a template and the name will be straight as when drawn. Use thumb tacks to hold the template, and placing the letter in the space from which its pattern was cut, fasten each letter and the name is completed with the exception of touching up the screw heads with enamel. Where bolts or escutcheon pins are used no touching up will



*W. B. M. shows how metallic letters can be applied to the boat*

be necessary. If the letters do not lie flat on the curved transom, strike them lightly with a block of wood, or, holding the block over the letters strike the block. The lead being soft will readily bend and lie close to the wood. In placing letters for which no templet has been made space them along a straight edge held against the hull.

At fitting out time, remove the name and number and while the hull is being painted enamel the letters and figures. When removing a name in which the same letter occurs more than once mark these letters on the back so that they will be replaced in their original position. Mark numbers port and starboard. The removal and replacing of the letters will take but a few minutes time and the painting is simplicity itself. Lay them on a board and paint the face and all the edges. A little care in handling a screwdriver that just fits the screw slots is all that is necessary to keep the letters in good condition. I have used lead letters and figures for ten years and none have been replaced or repaired. The trouble of removing and replacing the name is negligible when compared with trying to do a good job of painting the name on the stern.

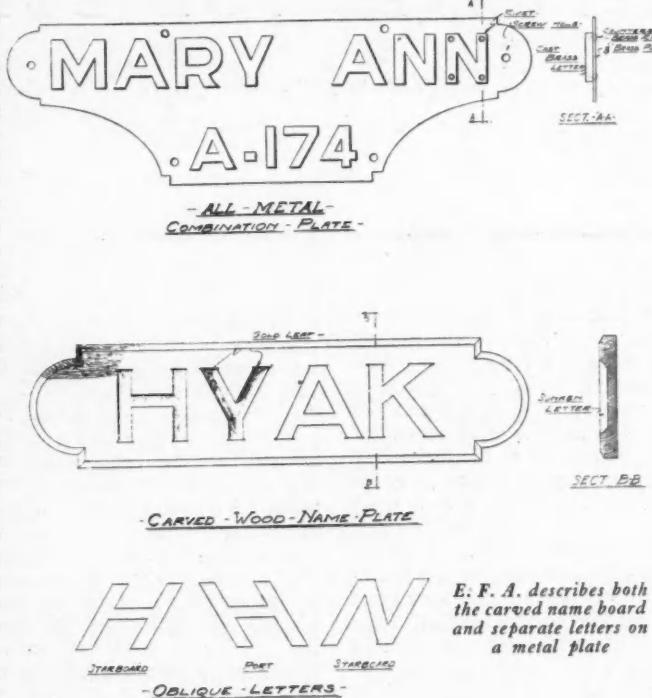
While a more satisfactory job will result, it is not absolutely necessary that the name be removed for painting. Paint the hull as usual disregarding the name. After the paint has dried, smooth off the face of the letters with fine sandpaper on a block, or use an old file. Place the templet around the name to prevent enamel from getting on the hull and enamel the face of the letters only. By using a knife blade or a thin piece of steel to press the templet close to the hull the sides of the letters may be enameled with but very little running over. Any spot that does happen to run over can be removed after the enamel has dried by scraping with a sharp knife, or while fresh with a cloth wet with turpentine over a flat stick.

W. B. M., Newburgh, N. Y.

#### METAL PLATE LOOKS WELL

**I**N the eyes of the world, the good ship's good name is no better than her nameplate. Hence, the desirability of having a plate superior to the general run of such fittings.

A strip of sheet aluminum makes a first-class plate for use on a motor boat in almost any kind of weather and service. Besides being presentable on bow, deck, or stern mounting, it is easily attached and removed, being mountable with many forms of wing-



nuts, U-bolts, staples, clamps, wedges, or concealed hinges. It is the lightest metal for the purpose, even if a fairly thick 22 or 24 gauge piece of stock is used. Aluminum is easy to cut, shape, and finish to mirror-like smoothness in the preliminary stages and takes primer, body, and finish coats of any common paint, lacquer, enamel, or varnish, with good results. If the metal has been prepared for painting, by immersing in, or brushing with, a good cleaner and remover solution, there is slight chance of rust or scale developing. It will be found resistant to the weathering and corroding effects of

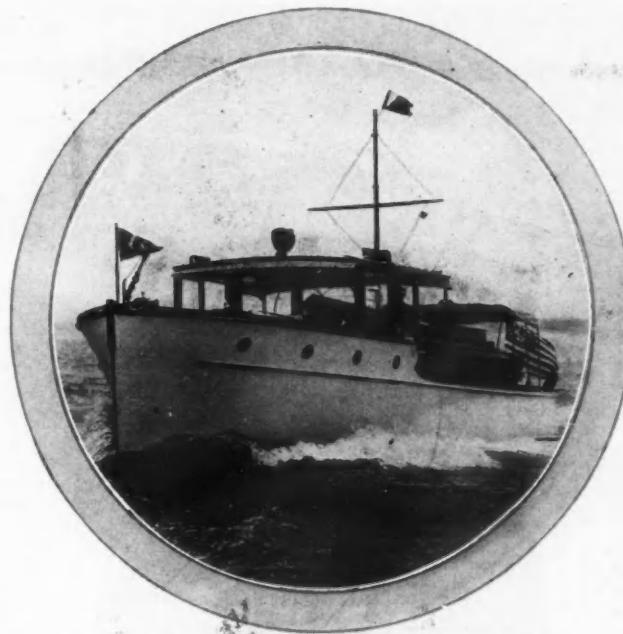
salt and fresh water and extremes of temperature over a longer period than other metals or woods that might be used for the nameplate. It is less likely to loosen, rattle, or vibrate than heavier metals and does not transmit to bow or deck the heat of a midsummer sun. It possesses good visibility and a minimum of glare with most kinds and colors of paint. A large plate in aluminum does not present the magnetic influence of one in ferrous metals. Large iron and steel nameplates have been located as the source of considerable compass deviation.

When refinishing the hull, the sheet aluminum strip comes off readily without forcing or marring. The hinged type simply folds over. Its lightness and cleanliness make it easily transportable to a sign or paint shop for cleaning and re-lettering when necessary, but this may not be required for several years.

Size and spacing of letters of the name should be considered. On boats of 30 feet or over the lettering might well be larger than average. Two-and-a-half to 3-inch height of letters is a good size, and space of  $\frac{1}{2}$ -inch or over between letters on ordinary length names aids legibility and display, as sign men say. Some prefer just the bare metal (polished) finish of the aluminum plate, but a coat of oil primer and aluminum paint add durability. Color of letters should harmonize with background of the plate or other external finish of the craft. However, the clear visibility of such combinations as yellow and black, orange and gray, or cadmium and dark green should be appreciated. The nameplates on bow should be at least 12 inches distant from the license numbers for clean-cut and artistic effects.

If the boatman wants to paint the plate himself, let him first practice on some cardboard or wood. The metal cleaning and sanding should be done with care, using a clear liquid cleaner, such as any good paint dealer or marine supply house recommends. The amateur's best bet is

(Continued on page 188)



*The 45 foot Dawn cruiser, a double cabin craft, powered with twin engines of 70 horse power each*

## STANDARDIZED BOATS WIN FAVOR

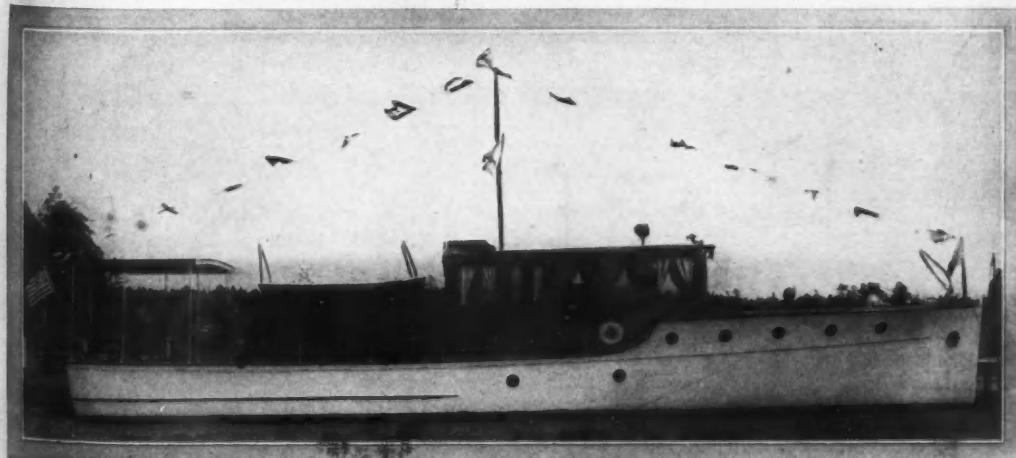
*Popularity of Standardized Craft Growing by Leaps and Bounds*

*with Steadily Increasing Demand for New Boats*

THE education of a boatman is a continuous process. It was only very recently that every man who desired to own a boat believed the only way to accomplish this desire was to build or design his own craft. This peculiarity of boatmen led to the construction of many odd and weird looking craft. The owners of these having had something to do with their design or construction, were tremendously proud of them despite the fact that other and more skillful boatmen could find innumerable faults with them. The campaign of the standardized build-

ers is bearing fruit and we find today that boatmen are admitting the superiority of designs prepared by the most skillful architects, and the advantages of standardized construction, particularly where strength of hull and economy in first cost are essential factors.

We find among the present day boat builders, several of the largest and most progressive all standing firmly behind the standardized boat idea. There are cruisers and runabouts being built in large quantities with a speed and quality of workmanship considered impossible only a relatively few years ago. Boat build-



*The fifty-foot Vinyard cruiser is also a twin screw job. This boat is large enough to permit staterooms in its arrangement*



*The Robinson 42 foot twin screw commuter is an exceptionally fast boat of its type*

ers themselves were reluctant to admit the advantages of standardized construction and in fact some of the old school have not yet been completely won over to these new methods of building.

Prominent among the newer generations of boat builders are the Dawn Boat Corporation of New York. They have developed a most excellent double cabin cruiser with a length of 45 feet and a beam of almost twelve feet. The boat is arranged to accommodate an owner's party of six persons and carry a paid hand in addition. The power plant consists of

*The Dyer Motorcraft runabout is to be finished in striking colors and will include several novelties in boat construction*

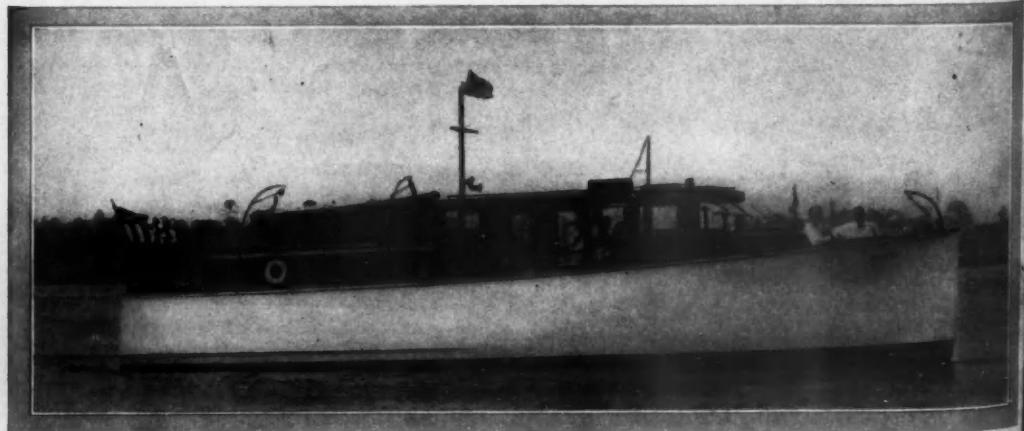


*A 45 foot standardized cruiser built by the Dachel Carter Boat Company in Benton Harbor, Michigan. This boat accommodates eight and is sturdily built*

two six cylinder engines which are capable of driving the boat at about 14 miles per hour. Construction is of the highest quality throughout, with a one piece keel of white oak. Frames are also of this excellent wood, and on these are riveted the planking which is of white cedar. Mexican mahogany is used for all exterior bright work. The furniture and trim throughout is of such a quality as to appeal to the skillful yachtsman and all items of equipment are of a proper standard and grade in the work to be done.

*(Continued on page 85)*

*The Fairform Flyer built by the Hachin Yacht Corporation in Florida is a fast 41 foot twin screw boat*



# STANDARDIZED BOATS

## Prices — Sizes — Equipment

NAME AND TYPE	Price	Length	Beam	Draft	Freeboard		Head-room	Bottom	Engine	Horse Power	Speed m.p.h.	STANDARD EQUIPMENT
					Forward	Aft						
C. F. 10 Day Cruiser	26-0	8-8	2-2	5-0	3-6	6-2	Round	Chrysler	100	20	abdefghijklmnopqrstuvwxyzBCFGJKLQSUVWXY	
10 Cruiser	\$ 4850	30-0	9-6	2-7	5-0	3-0	6-2	Round	Gray	40	10	abdefghijklmnopqrstuvwxyzBCFGJKLQSUVWXY
6 Cruiser	40-0	11-4	3-1½	5-4	3-4	6-2	Round	Hall-Scott	100	15	abdefghijklmnopqrstuvwxyzBCFGHJKLQRSTUVWXY	
6 Cruiser	17850	47-0	12-0	3-6	6-0	3-3	6-2	Round	Hall-Scott	100	13	abdefghijklmnopqrstuvwxyzBCFGHJKLQRSTUVWXY
6 Cruiser	32500	50-0	12-4	3-4	6-0	3-10	6-4	Round	Hall-Scott	2-100	15	abdefghijklmnopqrstuvwxyzBCFGHJKLQRSTUVWXY
6 Cruiser	36500	50-0	12-4	3-4	6-0	3-10	6-4	Round	Hall-Scott	2-175	19	abdefghijklmnopqrstuvwxyzBCFGHJKLQRSTUVWXY
60 Yacht	60000	68-3	13-10½	3-6	7-1	4-3	6-4	Round	Hall-Scott	2-175	18	abdefghijklmnopqrstuvwxyzBCFGHJKLQRSTUVWXY
CLANT												
12 Runabout	2700	23-0	6-0	1-9	2-0	2-0	Vee	Scripps	125	35	abdefhtuvwxyzBFJKLMSWXY	
15 Runabout	4000	26-0	6-6	1-11	2-9	1-8	Vee	Kermath	100	30	abdefhtuvwxyzBFJKLMSWXY	
18 Runabout	5500	30-0	7-0	2-3	3-7	2-3	Vee	Scripps	200	40	abdefhtuvwxyzBFJKLMSWXY	
25 Seden	12500	35-0	7-6	2-3	3-9	2-3	Vee	Sterling	300	38	abdefhtuvwxyzBFJKLMSWXY	
25 Cruiser	8500	38-0	10-4	2-10	5-0	3-4	6-2	Round	Sterling-Petrel	90	15	abdefghijklmnopqrstuvwxyzBCDEFGHJKLMSWXY
30 Cruiser	7500	38-0	10-4	2-10	5-0	3-4	6-2	Round	Kermath	65	12	abdefghijklmnopqrstuvwxyzBCDEFGHJKLMSWXY
40 Cruiser	13500	40-0	10-6	3-0	6-0	3-6	6-2	Vee	Sterling-Chevron	125	15	abdefghijklmnopqrstuvwxyzBCDEFGHJKLMSWXY
50 Cruiser	25000	50-0	12-0	3-0	6-6	4-0	6-2	Vee	Optional	300	20	abdefghijklmnopqrstuvwxyzBCDEFGHJKLMSWXY
60 Cruiser	33000	62-6	12-6	3-6	7-6	5-0	6-2	Vee	Optional			abdefghijklmnopqrstuvwxyzBCDEFGHJKLMSWXY
DAY CAB—See West. G.												
MANFIELD												
22 Cruiser	7850	32-0	8-6	2-6			Flat	Kermath	200	25	abdefghijklmnopqrstuvwxyzABFGHJKLMSWXY	
DRICK, FRANK—See Hunting & Greenport												
ROCKS												
2½ Runabout	1200	22-6	5-8	1-10	2-3	1-9	Vee	Universal	75		aboesvw	
20 Cruiser	2900	26-0	8-5	2-4	4-2	3-0	Vee	Gray	40	11-12	abepqsvuvwyFGKWX	
34 Cruiser	36-8	9-10	2-10½	5-0	3-6	5-8	Vee	Universal	75			
40 Cruiser	40-0	9-10	2-10½	5-0	3-6	6-0	Vee	Universal	110			
W. CUD												
10 Day Launch	731	20-0	5-6	1-8			Round	Palmer	4	8		
10 Runabout	927	19-0	4-11	1-6			Round	Niagara	15	12		
16 Lake & River Boat	307	16-0	4-8	1-0			Flat	Kermath	3	7½		
SHENROVET												
20 Cruiser	4750	30-0	9-3	2-5	4-7	3-1	6-0	Round	Chrysler	44	12	abedefgjklmnopqrstuvwxyzEFGHJKLMSWXY
30 Cruiser	5750	30-0	9-3	2-5	4-7	3-1	6-0	Round	Chrysler-Imp	108	20	abedefgjklmnopqrstuvwxyzEFGHJKLMSWXY
SHIPS CRAFT												
22 Runabout	2235	22-0	6-0	1-10	2-5	1-6	Vee	Chrysler	82	30	abedefhtuvwxyzBFJLMSWXY	
24 Runabout	2465	22-0	6-0	1-10	2-5	1-6	Vee	Chrysler	100	35	abedefhtuvwxyzBFJLMSWXY	
24 Runabout	2750	24-0	6-4	1-10	2-8	1-6	Vee	Chrysler	120	35	abedefhtuvwxyzBFJLMSWXY	
24 Runabout	3500	26-0	6-8	2-0	2-10	1-7	Vee	Chrysler	120	30	abedefhtuvwxyzBFJLMSWXY	
24 Runabout	4000	26-0	6-8	2-0	2-10	1-7	Vee	Kermath	150	40	abedefhtuvwxyzBFJLMSWXY	
24 Runabout	4750	26-0	6-8	2-0	2-10	1-7	Vee	Chris-Craft	200	45	abedefhtuvwxyzBFJLMSWXY	
24 Runabout	4850	26-0	6-8	2-0	2-10	1-7	Vee	Kermath	150	38	abedefhtuvwxyzBFJLMSWXY	
24 Runabout	5600	26-0	6-8	2-0	2-10	1-7	Vee	Chris-Craft	200	43	abedefhtuvwxyzBFJLMSWXY	
24 Custom Runabout	8000	30-0	7-1	2-2	3-1	2-0	Vee	Chris-Craft	200	40	abedefhtuvwxyzBFJLMSWXY	
24 Custom Cruiser	9750	30-0	7-1	2-3	3-1	2-0	Vee	Chris-Craft	200	38	abedefhtuvwxyzBFJLMSWXY	
24 Runabout	3500	24-0	6-4	1-10	2-8	1-6	Vee	Chrysler	120	33	abedefhtuvwxyzBFJLMSWXY	
24 Runabout	4975	28-0	7-0	2-3	2-10	1-9	Vee	Chris-Craft	200	42	abedefhtuvwxyzBFJLMSWXY	
24 Runabout	25-0	7-0	2-3	2-10	1-9	Vee	Chris-Craft	200	40	abedefhtuvwxyzBFJLMSWXY		
30 Cruiser	15000	38-0	9-9	2-7	4-1½	2-10	Vee	Chris-Craft	200	30	abedefghijklmnopqrstuvwxyzABCEFGHJKLMSWXY	
CONSOLIDATED												
14 Day Boat	11300	34-0	9-6	2-9			Round	Speedway	180	23	abedefgjklmnopqrstuvwxyzFGHJKLMSWXY	
W. D. 65	15900	45-6	11-10	3-0	6-3	3-4	6-2	Round	2-Lathrop	140	14-15	abedefghijklmnopqrstuvwxyzABCEFGHJKLMSWXY
W. D. 6000	24750	50-0	11-10	3-2	6-3	3-4	6-2	Round	2-Lathrop	300	22	abedefghijklmnopqrstuvwxyzABCEFGHJKLMSWXY
SEASAR—See Clevercraft												
22 Runabout	26-0	6-8	24	3	19		Vee	Kermath	150	40	abedefhtuvwxyzBFGMSWXY	
24 Runabout	22-6	6-1	22	30	22		Vee	Chrysler	100	35	abedefhtuvwxyzBFGMSWXY	
24 Runabout	30-0	7-6	24	36	22		Vee	Sterling-Petrel	150	35	abedefhtuvwxyzBFGMSWXY	
26-0	1975	22-6	5-7½	1-8	2-1	1-10½	Vee	Dodge	30-35	24	abedefhtuvwxyzFLSWY	
24 Runabout	2475	22-6	5-7½	1-8	2-1	1-10½	Vee	Dodge	90-100	37	abedefhtuvwxyzBCFLQSWY	
24 Runabout	3075	25-11	6-7½	2-0	2-7½	1-10½	Vee	Curtiss	90-100	35	abedefhtuvwxyzBCFLQSWY	
24 Runabout	3265	25-11	6-7½	2-0	2-7½	1-10½	Vee	Curtiss	110	35	abedefhtuvwxyzBCFLQSWY	
24 Runabout	1675	20-0	6-1	1-8	2-1	1-11	Vee	Dodge	30-35	22	abedefhtuvwxyzBCFLQSWY	
NEW EAST	1895	18-0	5-0	1-6	2-2	1-6	Vee	Universal	40	25	abedefhtuvwxyzBCFMQS	
PHY	3150	26-0	6-6	22	31	21	Vee	Kermath	100	30	abedefhtuvwxyzFMW	
INTERCOAST	2995	21-0	5-0	1-10	2-9	2-0	Round	Universal	120	35	abedefhtuvwxyzBFJLMSWXY	

See page 65 for Key to Equipment Symbols

# Standardized Boats ~ Prices ~ Sizes ~ Equipment

MAKE AND TYPE	Price	Length	Beam	Draft	Freeboard		Head-room	Bottom	Engine	Horse Power	Speed m.p.h.	STANDARD EQUIPMENT
					Forward	Aft						
<b>ELCO</b>												
26 Cruiser.....	2975	25-11	8-8	2-3	5-0	3-1	5-8	Round	Elec-Gray	27	10	abedfghpqswxyaFGHIJLMSWXY
34 Elec Cruisette.....	5950	34-0	9-0	2-6	4-1	3-0	6-0	Round	Elec WSM	48	13-14	abedfghpqswxyaBCFGHJKLMSWXY
38 Cruiser.....	10750	38-0	10-5	2-10	5-3	3-4	6-1	Round	Elec F-62	125	14-15	RUX
42 Elec Cruiser.....	18500	42-0	11-11	3-0	0-0	3-9	6-2	Round	Elec F-62	125	12-13	WXV
50 Elec Cruiser.....	25500	50-4	12-9	3-0	0-8	4-0	6-3	Round	Twin Elec	250	14-15	abedfghpqswxyaBCFGHJKLMSWXY
36 Elec Veedette.....	4975	30-11	8-6	2-4	4-0	3-0	6-1	Vee	Elec Buda	85	18-20	abedfghpqswxyaBCFGHJKLMSWXY
<b>FAIRFORM FLYER</b>												
Express Cruiser.....	12000 to 16500	42-0	11-0	2-8	6-4	3-10	6-3	Vee	2-Kermath	300 to 400	20-28	abedfghijklnopqrstuvwxyzABCDEFJKLMLNOPQRSTUVWXYZ
<b>FAY &amp; BOWEN</b>												
21 Runabout.....		21-0	5-9	0-11				Vee	Faybow-Challenger	60	30	ceswxyaBFMQSWXY
27 Double Cockpit.....		27-0	5-3	1-10	2-9	1-8		Round	Fay & Bowen	55	23	ceswxyaFMQSWXY
<b>FELLOWS &amp; STEWART</b>												
32 Cruiser.....	5250	32-0	10-0	2-6	5-2	3-4		Vee-Round	Kermath	35	10	abedfghpqswxyaFGHIJKLQRWSWXY
50 Cruiser.....	21500	50-0	11-0	3-0	7-0	4-0	6-3	Vee-Round	2-Sterling	300	20	abedfghpqswxyaBCGHJKLMSWXY
20 Runabout.....	2000	20-0	5-0	1-7	2-4	1-8		Round	Universal	26	18	TUVWXYZ
18 Runabout.....	1125	18-0	5-2	1-6	2-2	1-7		Round	Universal	15	13	abedfghpqswxyaPIJLQSY
<b>FLEETWING</b>												
Junior-Sea Skiff.....	3850	28-0	8-5	2-5½	4-4	3-0	6-0	Semi-V	Gray	72	11-14	abedfghpqswxyaFGHIJKLMSWXY
Sportster-S.S. Cruiser.....	5985	28-0	8-5	2-6½	4-2	2-11	6-0	Semi-V	Kermath	150	25-28	abedfghpqswxyaBFQHJKLMSWXY
40 Enc. Deck House DeLuxe.....	12950	40-0	10-10	3-6	5-6	3-8	6-2	Round	Buda	100	11-14	abedfghpqswxyaBCFGHJKLMSWXY
40 Bridge Deck-Dble. Cabin.....	10875	40-0	10-6	3-6	5-6	3-3	6-2	Round	Buda	100	11-14	abedfghpqswxyaBFCHIDKLMQSXY
<b>FREE BOTTOM</b>												
23-6 Runabout.....	3450	23-6	7-5	0-5	2-0	0-11		Vee	Curtiss OX5	90	30	efvwyBCFSWY
22 Sedan.....		23-0	8-2	0-7	2-8	1-10	5-0	Vee	Camaro	135	25	efvwyBCFGHMSWXY
32 Sedan.....		32-0	9-0	0-8	3-2	2-1	5-2	Vee	Wright	220	35	efvwyBCFGHMSWXY
<b>GRAY</b>												
32 Cruiser.....	6500	32-0	9-0	2-8	5-0	3-8	6-0	Round	Sterling-Petrel	200	22	abedfghpqswxyaFGHIJKLMSWXY
36 Cruiser.....	9500	36-0	10-13½	2-9	5-6	4-0	6-1	Round	Sterling-Petrel	200	20	abedfghpqswxyaFGHIJKLMSWXY
38 Cruiser.....	11000	38-0	10-6	2-9	5-6	4-0	6-1	Round	Sterling-Petrel	200	18	abedfghpqswxyaFGHIJKLMSWXY
40 Cruiser.....	16000	40-0	10-8	3-0	5-6	4-0	6-1	Round	2-Ster. Petrels	400	22	abedfghpqswxyaFGHIJKLMSWXY
<b>GREER-GREAT LAKES</b>												
45 Cruiser.....		45-0	10-9	3-3	5-7	3-6	6-2	Round	Optional	100-150	15-17	abedfghpqswxyaBCFGHJKLMSWXY
62 Sunbeam Cruiser.....		62-0	13-8	3-10	7-3	4-0	6-3	Round	Optional	150-300	15-16	abedfghpqswxyaBCFGHJKLMSWXY
<b>GREENPORT</b>												
Utility Runabout.....	3000	28-8	6-3	1-8	3-6	2-3	4-6	Round	Scripps	80	20	abedfghpqswxyaGJKLQSVWY
<b>HACKER</b>												
24 Open.....		24-0	6-4	1-9	2-6	1-8		Vee	Gray	100	35	abedfghpqswxyaBCFJLMSQSWY
24 Sedan.....		24-0	6-4	1-9	2-6	1-8		Vee	Gray	100	33	abedfghpqswxyaBCFGHJKLMSWXY
26 Open.....		25-11	7-0	1-11	2-7	1-0		Vee	Kermath	200	40-42	abedfghpqswxyaBCFJLMSQSWY
26 Sedan.....		25-11	7-0	1-11	2-7	1-0		Vee	Kermath	200	38-40	abedfghpqswxyaBCFJLMSQSWY
28 Sedan.....		29-0	7-0	1-11	2-7	1-0		Vee	Sterling	200	35-37	abedfghpqswxyaABCHEJKLMSQSWY
30 Sport.....		30-0	7-0	1-11	2-7	1-0		Vee	Hall-Scott	200	39-41	abedfghpqswxyaABCHEJKLMSQSWY
<b>HUCKINS—See Fairform</b>												
<b>HUMPHREYS</b>												
Bridge Deck Cruiser.....	15000	42-6	11-0	3-0	5-8	3-0	6-2	Round	Cummins-Diesel	48-80	12	abedfghijklnopqrstuvwxyzABCDEFJKLMLNOPQRSTUVWXYZ
<b>JOHNSON</b>												
35 Cruiser.....	4500	35-0	9-0	2-4	5-6	2-7	5-11	Round	Kermath	65	12	abedfghpqswxyaFGHIJKLMSWXY
28 Cruiser.....	2800	28-3	8-0	2-0	5-6	5-9		Round	Kermath	20	10	abedfghpqswxyaFGHIJKLMSWXY
<b>LIGGETT</b>												
35 Sgle. Cabin Cruiser.....	5475-6275	34-10	9-6	2-8	4-0	3-2	6-1	Round	Ch. of Kermath	65-200	13-22	abedfghpqswxyaFGHIJKLMSWXY
35 Spec. Enc. B. D. Cruiser.....	7475-7875	34-10	9-6	2-8	4-0	3-2	6-1	Round	Ch. of Kermath	65-125	13-17	abedfghpqswxyaFGHIJKLMSWXY
40 Edg. Deck Cruiser.....	11500-12500	40-0	10-8	3-0	6-4	3-6	6-2	Vee	Ch. of Kermath	65-150	13-17	abedfghpqswxyaBEGHIJKLMSWXY
54 Enc. B. D. Cruiser.....	28000-28000	54-0	13-0	3-6	7-8	4-2	6-3	Vee	Ch. of 2 Sterling or 2 Kermath	170-300	14-17	abedfghpqswxyaBEGHIJKLMSWXY
<b>LORD, F. K.</b>												
56 Speed Cr.....		56-0						Vee	2-Liberty	900	30	
<b>LUDERS</b>												
42 Cruiser.....		42-0	9-0	2-6				Vee	Sterling Sgle. or TwinSor.	250	28	abedfghpqswxyaABCDEFJKLMSWXY
<b>MATTHEWS</b>												
Speed Cruiser.....	7950	32-0	9-2	2-0			6-2	Round	Kermath	150	22-25	abedfghpqswxyaBCFGHJKLMSWXY
30 Sport Fisherman.....	6200	39-6	11-0	3-0	4-10	3-1	6-2	Round	Kermath	125	16-18	abedfghpqswxyaFGHIJKLMSWXY
Sport Cruiser.....	7500	38-6	11-0	3-0	4-10	3-1	6-2	Round	Kermath	150	17-19	abedfghpqswxyaFGHIJKLMSWXY
Sgle. Cabin Cruiser.....	6850	38-6	11-0	3-0	4-10	3-1	6-2	Round	Kermath	125	15-17	abedfghpqswxyaFGHIJKLMSWXY
Double Cabin Cruiser.....	8350	38-6	11-0	3-2	4-8	2-11	6-2	Round	Kermath	125	13-15	abedfghpqswxyaFGHIJKLMSWXY
38 Day Cruiser.....	7850	38-6	11-0	3-0	4-10	3-1	6-2	Round	Kermath	125	14-16	abedfghpqswxyaFGHIJKLMSWXY
46 Cruiser.....	14450	46-6	11-0	3-2	5-4	3-5	6-2	Round	Kermath	150	16-18	abedfghpqswxyaFGHIJKLMSWXY

See page 65 for Key to Equipment Symbols

## Standardized Boats – Prices – Sizes – Equipment

MATERIAL	MAKE AND TYPE	Price	Length	Beam	Draft	Freeboard		Head-room	Bottom	Engine	Horse Power	Speed m.p.h.	STANDARD EQUIPMENT	
						Forward	Aft							
WXY KLMQSTU WXY KLMQSTU	SEATOR	.....	27-0	.....	.....	.....	.....	Vee	Continental	115	30	.....	Data not available	
WXY KLMQSTU	WILLIAMS	1295	16-0	4-4	0-15	2-4	1-8	Vee	Gray	30	21	.....	.....	
WXY KLMQSTU	10 Red Arrow	1495	16-0	4-4	0-15	2-4	1-8	Vee	Universal	45	30	.....	.....	
WXY KLMQSTU	10 Red Arrow	1495	20-0	4-4	0-15	2-4	1-8	Vee	Gray	30	20	.....	.....	
WXY KLMQSTU	10 Red Arrow	1695	20-0	4-4	0-15	2-4	1-8	Vee	Universal	45	26	.....	.....	
WXY KLMQSTU	NEW YORK YACHT Launch & Engine Co.	.....	67-0	15-6	3-6	.....	.....	Round	2-20th Century	120	12	.....	.....	
WXY KLMQSTU	ST House Yacht	.....	77-0	15-0	3-9	.....	.....	Round	2-20th Century	200	14	abcd	ghpqsuwvxyaBCEGLJKLQRSTUW	
WXY KLMQSTU	ST Cruiser	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	abcd	ghpqsuwvxyaBCEGLJKLQRSTUW	
ABCDEFH GHIJKLMNOP	LYON, HOWARD—See SEA LYON	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
ABCDEFH GHIJKLMNOP	MCOLEY & DEED G Head Cruiser	16000	43-0	12-0	3-9	6-6	3-9	6-2	Round	Std. Diesel	60	12	abcd	ghpqsuwvxyaEIJKLMQQRSTUW XY
ABCDEFH GHIJKLMNOP	G Head Cruiser	22000	53-0	12-0	3-10	6-6	3-9	6-2	Round	Std. Diesel	60	14	abcd	ghpqsuwvxyaEIJKLMQQRSTUW XY
ABCDEFH GHIJKLMNOP	20 Twin Screw Diesel Cruiser	28000	54-0	12-0	3-10	6-6	3-9	6-2	Round	2 Std. Diesel	120	17	abcd	ghpqsuwvxyaEIJKLMQQRSTUW XY
ABCDEFH GHIJKLMNOP	RICHARDSON 10 Cruiser Spt. Cabin	3585	28-0	8-10	2-6	4-4	3-0	5-11	Round	Gray	40	11	abc	hpqsuwxyaFGHJKLQMWSUWXY
ABCDEFH GHIJKLMNOP	RICHARDSON 10 Mid. Cabin Cruiser	3985	28-0	8-10	2-6	4-4	3-0	5-11	Round	Gray	40	11	abc	hpqsuwxyaFGHJKLQMWSUWXY
WXY KLMQSTU	MONROE Sea-God	.....	39-0	8-0	2-0	.....	.....	Vee	Hall-Scott	200	33	.....	Data not available	
WXY KLMQSTU	SEA GOER	2950	27-0	8-6	2-6	.....	.....	Vee	Gray	.....	22	.....	.....	
WXY KLMQSTU	SEA LYON Cruiser	25000	42-0	9-9	3-2	4-10½	3-4½	6-2	V-Hydro.	2 Ster. Pet.	400	40	abcd	ghijkimnopstuwxyaABCEFHIJK LMQSUVWXY
WXY KLMQSTU	Model 60	12500	36-0	9-0	2-3	3-3	2-2	.....	V-Hydro.	Liberty	425	60	abcd	stuwxyaABCJKLQMWSWXY
WXY KLMQSTU	Model 65	5750	30-0	7-0	2-1	2-9	2-1	.....	Vee	Ster. Pet.	200	45	abcd	stuwxyaBCFJKLQMWSWXY
WXY KLMQSTU	Model 65	4650	28-0	6-7	2-2	2-8	2-2	.....	Vee	Kermath	200	40	abcd	stuwxyaBCFJKLQMWSWXY
WXY KLMQSTU	Model 65	2975	24-0	6-0	1-10	2-6	2-0	.....	Vee	Chrysler	120	35	abcd	stuwxyaBCFJKLQMWSWXY
WXY KLMQSTU	SEA SLED	.....	22-10½	5-10½	1-6	.....	.....	Spec.	Universal	110	30	abcd	stuwxyaFGHJKLQSWXY	
WXY KLMQSTU	22 Sleds.	.....	27-5½	6-8	1-10	.....	.....	Spec.	Hall-Scott	200	40	abcd	stuwxyaABCFGHJKLQSWXY	
WXY KLMQSTU	22 Sleds.	.....	27-5½	6-8	1-10	.....	.....	Spec.	Hall-Scott	200	40	abcd	stuwxyaABCFGHJKLQSWXY	
WXY KLMQSTU	SMITH, CHRIS—See CHRISCRATE	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
WXY KLMQSTU	SIMPLIES, JOHNSON & CO.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
WXY KLMQSTU	Harpoon-Sedan Cra.	6950	34-0	9-6	2-9	.....	.....	6-2	Round	Ker. or Scripps Optional	200	28	abcd	ghpqsuwvxyaBCLMWSWXY
WXY KLMQSTU	Harpoon-Cruiser	5350-6950	34-0	9-6	2-9	.....	.....	6-1	Round	65-200	13-28	abcd	ghpqsuwvxyaBCLMWSWXY	
WXY KLMQSTU	Viking-Dan. Cab. Cra.	40-0	10-3	3-4	.....	.....	6-2	Round	Ker. or Diesel	60-200	13-16	abcd	ghpqsuwvxyaBCLMWSWXY	
WXY KLMQSTU	TOPPAN	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
WXY KLMQSTU	22 Sea Dog Rambo	2350	22-0	6-0	2-0	2-2	1-8	.....	Vee	Kermath	70	30	abcd	ghpqstuwxyaBCLMWSWXY
WXY KLMQSTU	22 Sea Dog Rambo	4000	26-0	7-6	24-0	4-0	2-6	.....	Vee	Sterling	150	35	abcd	ghpqstuwxyaBCLMWSWXY
WXY KLMQSTU	22 Cruiser	.....	29-0	.....	.....	.....	.....	.....	.....	Kermath	100	20	abcd	ghpqstuwxyaFGJKLQMWSWXY
WXY KLMQSTU	2½ Cruiser	.....	32-6	.....	.....	.....	.....	.....	.....	Sterling	150	30	abcd	ghpqstuwxyaFGJKLQMWSWXY
WXY KLMQSTU	TOWNSEND	81500	56-0	13-0	3-9	6-8	4-2	6-3	Round	2 Hill Diesel	2-75	16	abcd	ghpqsuwvxyaBCEFGIJKLQRSTS TUWXY
WXY KLMQSTU	St. Blood Cr.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
WXY KLMQSTU	VINTAGE	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
WXY KLMQSTU	20 Cruiser	21000	50-8	12-6	3-10	7-3	3-10	6-5	Round	Sterling	300	16	abcd	ghijkimnopqstuwxyaBFGHIJK LMQRSTUWXY
WXY KLMQSTU	WHEELER	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
WXY KLMQSTU	25 S.H.	1950	25-C	6-8	26	3-6	2-6	.....	Round	Scripps	70	18	No data	.....
WXY KLMQSTU	25 S.H.	2225	28-0	8-0	26	4-0	3-0	.....	Vee	Scripps	70	15	No data	.....
WXY KLMQSTU	25 Cruiser	3750	28-0	8-9	30	4-0	3-0	5-11	Vee	Scripps	65	16	No data	.....
WXY KLMQSTU	WILAY, RALPH H. 41 Cruiser	8700	41-0	10-8	2-9	6-4	3-9	6-4	Round	Kermath	65	12	abcd	ghpqsuwvxyaFGHJKLQMRSUW XY
WXY KLMQSTU	21 Cruiser	5500	31-0	10-2	2-3	5-0	3-7	6-2	Round	Fayt Bowen	40	11	abcd	ghpqsuwvxyaFGHJKLQMRSUW XY
WXY KLMQSTU	WOOD, GAB.	4500	28-0	7-2	2-1	.....	.....	Vee	Chrysler	106	30	abcd	stuwxyaBCFJKLQSW	
WXY KLMQSTU	22 Baby Gab.	4500	28-0	7-2	2-1	.....	.....	Vee	Scripps or Kermath	200	38-40	abcd	stuwxyaBCFJKLQSW	
WXY KLMQSTU	22 Baby Gab.	9500	33-0	7-2	2-6	.....	.....	Vee	Gar Wood	500	48-50	abcd	stuwxyaBCFJKLQSW	
WXY KLMQSTU	22 Cruiser	45000	50-0	11-3	3-0	6-0	5-0	6-0	Vee	Gar Wood	400	42	abcd	stuwxyaBCFGIJKLQMSTSUVW XY
WXY KLMQSTU	YOUNG, WILBUR—See SEA GOER	50000	.....	.....	.....	.....	.....	.....	.....	.....	47	.....	.....	

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**Key to Equipment Symbols**

Key to Equipment Symbols									
—	Blankets	—	Bilge Pump	—	B—Tachometer	—	K—Bell	—	T—Dinghy
—	Table Linen	—	Tailors	—	C—Motometer	—	L—Pilot Rules	—	U—Table
—	China	—	Whistle	—	D—Charts	—	M—Flags	—	V—Chairs
—	Glassware	—	Fire Extinguisher	—	E—Chart Case	—	N—Signal Code Flags	—	W—Flooring Covering
—	Silverware	—	Running Lights	—	F—Windshield	—	O—Sails	—	X—Upholstery Inside
—	Galley Equipment	—	Searchlight	—	G—Awning or Top	—	P—Oil Skins	—	Y—Locker Space
—	Stove	—	Electric Lights	—	H—Side Curtains	—	Q—Boat Hook	—	
—	Ice Box	—	Storage Battery	—	I—Compass	—	R—Boarding Ladder	—	
—	Radio	—	Clock	—	J—Fox Horn	—	S—Tools	—	

## Structural and Mechanical Specifications of Standardized Boats

Structural and Mechanical Specifications of Standardized Boats

## Structural and Mechanical Specifications of Standardized Boats

MAKE AND TYPE	Starboard	Port	Frames and Splices	Keel	Plankline	Fwd. Endings	Trim	Rudder	Mts.	Horsepower	Boat Speed	Weight	Revolutions	Bear. and Steering	Shuttle	Shuttle Box	Shuttle Battery	Shuttle Generator
FREE BOTTOM																		
22 Runabout																		
22 Sedan																		
22 Sedan																		
GRAY	1	4	0	1	Smooth	Bent 1½ x 1½	Oak 3½	Oak 3½	90	1450	450	30	Aft					
32 Cruiser	2	6	1	2	Smooth	Bent 1½ x 1½	Oak 3½	Oak 3½	135	565	900	350	Aft					
34 Cruiser	3	6	1	2	Smooth	Bent 1½ x 1½	Oak 3½	Oak 3½	223	1850	480	33	Aft					
38 Cruiser	2	6	1	2	Smooth	Bent 1½ x 1½	Oak 3½	Oak 3½	200	54-6	2000	150	22	Midship				
40 Cruiser	3	6	1	2	Smooth	Bent 1½ x 1½	Oak 3½	Oak 3½	200	54-6	2200	750	15	Midship				
40 Cruiser	3	6	1	2	Smooth	Bent 1½ x 1½	Oak 3½	Oak 3½	200	54-6	2000	1500	20	Midship				
40 Cruiser	3	6	1	2	Smooth	Bent 1½ x 1½	Oak 3½	Oak 3½	200	54-6	2000	1500	20	Midship				
40 Cruiser	3	6	1	2	Smooth	Bent 1½ x 1½	Oak 3½	Oak 3½	200	54-6	2000	1500	22	Midship				
GREEN	2	6	1	2	Smooth	Bent 1½ x 1½	Oak 4	12 Oak 4	200	54-6	2000	150	22	Midship				
62 Submariner	3	6	1	2	Smooth	Bent 1½ x 2½	Oak 5	12 Oak 5	200	54-6	2000	150	22	Midship				
Cruiser																		
GREENPORT																		
28 Dihull ketch																		
1929 Rowing	2	6	1	2	Smooth	Bent 1½ x 1½	Oak 4½	Oak 4½	200	54-6	2000	150	22	Midship				
Ever. B. D.																		
HACKER																		
24 Open																		
24 Sedan																		
26 Sedan																		
29 Sedan																		
30 Sport																		
HUMPHREYS																		
Bridge Deck	3	7	1	2	Wood	1½ x 1½	7 Oak 5½	½ Cedar	Copper	Mahogany	Bronze	14-60	4½-6	1000	2850	12	Bridge deck	24x20
Cruiser																		
LIGGETT	1	4	1	1	Smooth	Bent 1½ x 1½	10 Oak 5½	10 Cedar	Mahogany	Bronze	Kernath	0-200	...	...	Coopit	21x13	13½	Inboard
35 Spec. Cabin																		
35 Erc. B. D.	1	5	1	1	Smooth	1½ x 1½	10 Cedar	10 Cedar	Mahogany	Bronze	Kernath	15-15½	...	...	Under bag.	21x12	13½	120 h.
Cruiser																		
40 Bridge Deck	2	8	1	2	Smooth	1½ x 1½	10 Cedar	10 Cedar	Mahogany	Bronze	Kernath	15-20	...	...	Under bag.	22x14	13½	120 h.
54 Erc. B. D.	3	6	1	2	Smooth	Bent 1½ x 1½	10 Oak 5½	10 Cedar	Mahogany	Bronze	Kernath	130-400	...	...	Liberty	2-450	5x7	Midship
Cruiser																		
LORD, F. K.																		
56 Speed C...																		
LUDERS	1	2	1	1	Smooth	D'ye Bent	Mahogany	Mahogany	Bronze	Steering	1 or 2	250	5½x10½	1700	...	28	Aft	
42 Cruiser																		
MATTHEWS																		
38 Spec. Cabin	1	4	1	1	Smooth	Bent 1½ x 1½	9 Cedar	½ Cedar	Gle. & Cpr.	Mahogany	Bronze	125	4½-6½	1700	1500	17	Midship	21x14
38 Double Cabin	2	5	1	2	Smooth	Bent 1½ x 1½	9 Cedar	½ Cedar	Gle. & Cpr.	Mahogany	Bronze	125	4½-6½	1700	1500	12	Midship	21x14
Cruiser																		
38 Double Cabin	2	5	1	2	Smooth	Bent 1½ x 1½	9 Cedar	½ Cedar	Gle. & Cpr.	Mahogany	Bronze	125	4½-6½	1700	1500	12	Midship	22x14
38 Double Cabin	2	5	1	2	Smooth	Bent 1½ x 1½	9 Cedar	½ Cedar	Gle. & Cpr.	Mahogany	Bronze	125	4½-6½	1700	1500	18	Midship	22x14
Cruiser																		
38 Double Cabin	2	5	1	2	Smooth	Bent 1½ x 1½	9 Cedar	½ Cedar	Gle. & Cpr.	Mahogany	Bronze	125	4½-6½	1700	1500	12	Midship	22x14
Cruiser																		
38 Double Cabin	2	5	1	2	Smooth	Bent 1½ x 1½	9 Cedar	½ Cedar	Gle. & Cpr.	Mahogany	Bronze	125	4½-6½	1700	1500	12	Midship	22x14
Cruiser																		
38 Double Cabin	2	5	1	2	Smooth	Bent 1½ x 1½	9 Cedar	½ Cedar	Gle. & Cpr.	Mahogany	Bronze	125	4½-6½	1700	1500	12	Midship	22x14
Cruiser																		
38 Double Cabin	2	5	1	2	Smooth	Bent 1½ x 1½	9 Cedar	½ Cedar	Gle. & Cpr.	Mahogany	Bronze	125	4½-6½	1700	1500	12	Midship	22x14
Cruiser																		
38 Double Cabin	2	5	1	2	Smooth	Bent 1½ x 1½	9 Cedar	½ Cedar	Gle. & Cpr.	Mahogany	Bronze	125	4½-6½	1700	1500	12	Midship	22x14
Cruiser																		
38 Double Cabin	2	5	1	2	Smooth	Bent 1½ x 1½	9 Cedar	½ Cedar	Gle. & Cpr.	Mahogany	Bronze	125	4½-6½	1700	1500	12	Midship	22x14
Cruiser																		
38 Double Cabin	2	5	1	2	Smooth	Bent 1½ x 1½	9 Cedar	½ Cedar	Gle. & Cpr.	Mahogany	Bronze	125	4½-6½	1700	1500	12	Midship	22x14
Cruiser																		
38 Double Cabin	2	5	1	2	Smooth	Bent 1½ x 1½	9 Cedar	½ Cedar	Gle. & Cpr.	Mahogany	Bronze	125	4½-6½	1700	1500	12	Midship	22x14
Cruiser																		
38 Double Cabin	2	5	1	2	Smooth	Bent 1½ x 1½	9 Cedar	½ Cedar	Gle. & Cpr.	Mahogany	Bronze	125	4½-6½	1700	1500	12	Midship	22x14
Cruiser																		
38 Double Cabin	2	5	1	2	Smooth	Bent 1½ x 1½	9 Cedar	½ Cedar	Gle. & Cpr.	Mahogany	Bronze	125	4½-6½	1700	1500	12	Midship	22x14
Cruiser																		
38 Double Cabin	2	5	1	2	Smooth	Bent 1½ x 1½	9 Cedar	½ Cedar	Gle. & Cpr.	Mahogany	Bronze	125	4½-6½	1700	1500	12	Midship	22x14
Cruiser																		
38 Double Cabin	2	5	1	2	Smooth	Bent 1½ x 1½	9 Cedar	½ Cedar	Gle. & Cpr.	Mahogany	Bronze	125	4½-6½	1700	1500	12	Midship	22x14
Cruiser																		
38 Double Cabin	2	5	1	2	Smooth	Bent 1½ x 1½	9 Cedar	½ Cedar	Gle. & Cpr.	Mahogany	Bronze	125	4½-6½	1700	1500	12	Midship	22x14
Cruiser																		
38 Double Cabin	2	5	1	2	Smooth	Bent 1½ x 1½	9 Cedar	½ Cedar	Gle. & Cpr.	Mahogany	Bronze	125	4½-6½	1700	1500	12	Midship	22x14
Cruiser																		
38 Double Cabin	2	5	1	2	Smooth	Bent 1½ x 1½	9 Cedar	½ Cedar	Gle. & Cpr.	Mahogany	Bronze	125	4½-6½	1700	1500	12	Midship	22x14
Cruiser																		
38 Double Cabin	2	5	1	2	Smooth	Bent 1½ x 1½	9 Cedar	½ Cedar	Gle. & Cpr.	Mahogany	Bronze	125	4½-6½	1700	1500	12	Midship	22x14
Cruiser																		
38 Double Cabin	2	5	1	2	Smooth	Bent 1½ x 1½	9 Cedar	½ Cedar	Gle. & Cpr.	Mahogany	Bronze	125	4½-6½	1700	1500	12	Midship	22x14
Cruiser																		
38 Double Cabin	2	5	1	2	Smooth	Bent 1½ x 1½	9 Cedar	½ Cedar	Gle. & Cpr.	Mahogany	Bronze	125	4½-6½	1700	1500	12	Midship	22x14
Cruiser																		
38 Double Cabin	2	5	1	2	Smooth	Bent 1½ x 1½	9 Cedar	½ Cedar	Gle. & Cpr.	Mahogany	Bronze	125	4½-6½	1700	1500	12	Midship	22x14
Cruiser																		
38 Double Cabin	2	5	1	2	Smooth	Bent 1½ x 1½	9 Cedar	½ Cedar	Gle. & Cpr.	Mahogany	Bronze	125	4½-6½	1700	1500	12	Midship	22x14
Cruiser																		
38 Double Cabin	2	5	1	2	Smooth	Bent 1½ x 1½	9 Cedar	½ Cedar	Gle. & Cpr.	Mahogany	Bronze	125	4½-6½	1700	1500	12	Midship	22x14
Cruiser																		
38 Double Cabin	2	5	1	2	Smooth	Bent 1½ x 1½	9 Cedar	½ Cedar	Gle. & Cpr.	Mahogany	Bronze	125	4½-6½	1700	1500	12	Midship	22x14
Cruiser																		
38 Double Cabin	2	5	1	2	Smooth	Bent 1½ x 1½	9 Cedar	½ Cedar	Gle. & Cpr.	Mahogany	Bronze	125	4½-6½	1700	1500	12	Midship	22x14
Cruiser																		
38 Double Cabin	2	5	1	2	Smooth	Bent 1½ x 1½	9 Cedar	½ Cedar	Gle. & Cpr.	Mahogany	Bronze	125	4½-6½	1700	1500	12	Midship	22x14
Cruiser																		
38 Double Cabin	2	5	1	2	Smooth	Bent 1½ x 1½	9 Cedar	½ Cedar	Gle. & Cpr.	Mahogany	Bronze	125	4½-6½	1700	1500	12	Midship	22x14
Cruiser																		
38 Double Cabin	2	5	1	2	Smooth	Bent 1½ x 1½	9 Cedar	½ Cedar	Gle. & Cpr.	Mahogany	Bronze</							

## Structural and Mechanical Specifications of Standardized Boats

# AMERICA'S LEADING MARINE ENGINES

Newest Sizes and Styles of Marine Engines Arranged Alphabetically for  
Easy Selection and Comparison

MAKE & MODEL	Horse Power	Bore & Stroke	No. of Cyl.	R.P.M.	Weight	Lubri- cation	Reverse Gear	Starting Device	Ignition System	Spark Plugs	Color code
<b>BRENNAN STANDARD</b>											
N-4.....	15-40	4 x 5	4	1200	625	Pr.	Own		B. & M.	Ch.	Br.
N-4.....	25-50	4 x 5	4	2000	600	Pr.	Own		B. & M.	Ch.	Br.
E-4.....	25-40	4½ x 5	4	1500	1000	Pr.	Own		B. & M.	Ch.	Br.
D-6.....	50-75	4½ x 5	6	1800	1100	Pr.	Own		B. & M.	Ch.	Br.
60.....	4 x 5½	6	2000	900	Pr.	Own		Opt.	Ch.	Br.	
100.....	60-100	4½ x 5½	6	1800	1200	Pr.	Own		Opt.	Ch.	Br.
Master Six.....	200	5 x 5½	6	2800	1700	Pr.	Own		Opt.	Ch.	Br.
Gold Cup.....	150	4½ x 6½	6	2800	1500	Pr.	Own		Opt.	Ch.	Br.
EE-4.....	50-70	4½ x 5	4	2000	650	Pr.	Own		Opt.	Ch.	Br.
90 De Luxe.....	60-115	4 x 5½	6	2500	(H.S. 900)	Pr.	Own		Opt.	A.C.	Br.
125 De Luxe.....	65-125	4½ x 5½	6	2200	(H.S. 1000)	Pr.	Own		Opt.	A.C.	Br.
					(H.D. 1500)						
<b>BUDA</b>											
BM-6.....	80	4 x 5½	6	1800		Pr.	Par.	DR	B. & M.	A.C.	Br.
BMA-6.....	85	4½ x 5½	6	1800		Pr.	Par.	DR	B. & M.	A.C.	Br.
BMA-6-S.....	85	4½ x 5½	6	1800		Pr.	Par.	DR	Dble. B.	A.C.	Br.
GM-6.....	115	4½ x 6	6	1600		Pr.	Joes	DR	B. & M.	A.C.	Br.
GMF-6.....	130	4½ x 6	6	1600		Pr.	Joes	DR	E.I.M.	A.C.	Br.
*BMR-6.....	80	4 x 5½	6	1800		Pr.	Joes	DR	E.I.M.	A.C.	Br.
*BMR-6.....	85	4½ x 5½	6	1800		Pr.	Joes	DR	E.I.M.	A.C.	Br.
*GMR-6.....	115	4½ x 6	6	1800		Pr.	Joes	DR	E.I.M.	A.C.	Br.
*GMF-6.....	130	4½ x 6	6	1800		Pr.	Joes	DR	E.I.M.	A.C.	Br.
<b>BUFFALO</b>											
Navy.....	14-30	3½ x 5	4	1600	690	Spl.	Joes	Au.	B.	Ch.	Br.
Clipper.....	45	3½ x 3½	6	2800	725	Pr.	Joes	Au.	B.	Ch.	Br.
Buffalo Knight.....	80	3½ x 4½	6	2400	1050	Pr.	Joes	Au.	B.	Ch.	Br.
Navigator.....	100	4½ x 5	6	2000	1800	Pr.	Joes	L.N.	B. or M.	Ch.	Br.
Dreadnaught 4.....	100	5½ x 7	4	1200	2800	Pr.	Joes	L.N. & N.E.	B. or M.	Ch.	Br.
Dreadnaught 6.....	200	5½ x 7	6	1500	3200	Pr.	Joes	L.N. & N.E.	B. or M.	Ch.	Br.
Heavy Duty.....	13-15	6 x 7½	2	350	1400	Me.	Own	L.N.	B. or M.	Ch.	Br.
Heavy Duty.....	20-22	7 x 9	2	350	2100	Me.	Own	L.N.	B. or M.	Ch.	Br.
Heavy Duty.....	26-30	6 x 7½	4	350	2525	Me.	Own	L.N.	B. or M.	Ch.	Br.
Heavy Duty.....	45-50	7½ x 9	4	350	4200	Me.	Own	L.N.	B. or M.	Ch.	Br.
<b>CADY</b>											
12M.....	2	3 x 2½	1	700	45	In fuel			Own or E.I.M.	A.C.	Br.
1N.....	5	4½ x 4	1	700	140	Spl.			W.L.	A.C.	Br.
Cadytour 28.....	15-20	3½ x 4	4	1200	360	Spl. & Pr.	Own		Bo. or A.K.	A.C.	Br.
Cadytour King.....	15-20	3½ x 4	4	1200	450	Spl. & Pr.	Own		Bo. or A.K.	A.C.	Br.
Cadytour Ace.....	30-40	3½ x 4	4	2000	475	Spl. & Pr.	Own		Bo. or A.K.	A.C.	Br.
<b>CAILLE</b>											
12½.....	3½ x 3½	1	800	125	In fuel	Own				Ch.	Br.
14.....	3½ x 3½	1	800	150	In fuel	Own				Ch.	Br.
16.....	4½ x 3½	1	800	200	In fuel	Own				Ch.	Br.
16.....	4½ x 3½	1	800	250	In fuel	Own				Ch.	Br.
18.....	3½ x 3½	2	800	280	In fuel	Own				Ch.	Br.
18.....	5½ x 5	1	500	335	In fuel	Own				Ch.	Br.
18.....	3½ x 3½	2	850	220	In fuel	Own				Ch.	Br.
14.....	4½ x 4½	4	750	350	In fuel	Own				N.E.	Ch.
<b>CHRYSLER IMPERIAL</b>											
Imperial High-Speed.....	100	3½ x 5	6	2800	890	Pr.	Own		DR	Ch.	Br.
Imperial Medium-Duty.....	40-65	3½ x 5	6	1600	1000	Pr.	Own		DR	Ch.	Br.
Royal High-Speed.....	82	3½ x 5	6	2800	765	Pr.	Own		DR	Ch.	Br.
Royal Medium-Duty.....	30-50	3½ x 5	6	1600	890	Pr.	Own		DR	Ch.	Br.
*Imperial High-Speed.....	106	3½ x 5	6	1400	1125	Pr.	Own		DR	Ch.	Br.
*Royal Medium-Duty.....	30-50	3½ x 5	6	800	1000	Pr.	Own		DR	Ch.	Br.
<b>DETROIT—MARINE</b>											
F-4.....	300	6.3 x 7.0	6	1750	1650	Pr.	Joes	Gar Wood	DR	Ch.	Br.
F-4A.....	300	6.3 x 7.0	6	1700	1750	Pr.	Joes	Gar Wood	DR	Ch.	Br.
<b>EVINRUDE</b>											
†DD Inboard.....	5	2½ x 2½	2	1200	60	In fuel	Own		M.	Ch.	Br.
†DDR Inboard.....	5	2½ x 2½	2	1200	85	In fuel	Own		M.	Ch.	Br.
<b>FAY &amp; BOWEN</b>											
Globe.....	20	3½ x 4	4	1800	365	Pr.	Par.	Au.	B. or M.	Ch.	Br.
LC-61.....	55	3½ x 4½	6	2000	845	Pr.	Par.	N.E.	B.	Ch.	Br.
LN-43.....	40	4½ x 5½	4	1000	950	Pr.	Par.	N.E.	B. & M.	Ch.	Br.
LNS-43.....	60	4½ x 5½	4	1400	750	Pr.	Par.	N.E.	M.	Ch.	Br.
<b>FAYBOW-CONTINENTAL</b>											
L.....	40	2½ x 4½	6	2200	650	Pr.	Par.	Au.	B.	Ch.	Br.
C.....	60	3½ x 4½	6	2200	820	Pr.	Par.	Au.	B.	Ch.	Br.
B.....	70	3½ x 5	6	2200	1075	Pr.	Par.	Au.	B.	Ch.	Br.
T.....	80	4½ x 5½	6	2000	1445	Pr.	Par.	Au.	B.	Ch.	Br.
T-2.....	90	4½ x 5½	6	2000	1445	Pr.	Par.	Au.	B.	Ch.	Br.
Challenger.....	60	3½ x 4	6	2800	690	Pr.	Par.	Au.	B.	Ch.	Br.
Defender.....	75	4 x 4½	6	2200	950	Pr.	Par.	Au.	B.	Ch.	Br.
Conqueror.....	100	4½ x 4½	6	2200	1150	Pr.	Par.	Au.	B.	Ch.	Br.

\*Equipped with reduction gear  
†Two Cycle

See page 73 for Key to Equipment Symbols

# AMERICA'S LEADING MARINE ENGINES

MAKE & MODEL	Horse Power	Bore & Stroke	No. of Cyl.	R.P.M.	Weight	Lubri- cation	Reverse Gear	Starting Device	Ignition System	Spark Plugs	Carbu- rator
GRAY											
One-5	5	3 1/4 x 4 1/2	1	1000	165	Spl.	Joes	Bo.	Bo.	Ch.	Til.
Two-10	10	3 1/4 x 4 1/2	2	1200	250	Spl.	Par.	Bo.	Bo.	Ch.	Til.
Four-20	30	3 1/4 x 4 1/2	4	2400	400	Pr.	Par.	Au.	Au.	A.C.	Til.
Four-30	35-50	4 x 5	4	1200	850	Pr.	Joes	Au.	Au.	Ch.	Sch.
Four-35	45-70	4 1/2 x 6	4	1200	1400	Pr.	Par.	Au.	Au.	Ch.	Sch.
Four-40	40	3 1/4 x 3 1/2	6	2400	540	Pr.	Par.	Au.	Au.	A.C.	Til.
Four-60	60	3 1/4 x 4	6	3100	570	Pr.	Par.	Au.	Au.	A.C.	Til.
Five-72	72	3 1/4 x 4 1/2	6	3100	640	Pr.	Joes	Au.	Au.	Ch.	Til.
Five-90	90	3 1/4 x 5	6	1800	850	Pr.	Joes	DR	DR	A.C.	Til.
Eight-117	117	3 1/4 x 4 1/2	8	3300	930	Pr.	Joes	Au.	Au.	A.C.	Zen.
BATFORD											
5	5	4 x 4 1/2	1	700	230	Gr.		Hand	Ma. & Br.		Sch.
8	8	4 1/2 x 4 1/2	1	700	240	Gr.		Hand	Ma. & Br.		Sch.
10	10	5 x 5 1/2	1	700	310	Gr.		Hand	Ma. & Br.		Sch.
BALL-SCOTT											
HM-4	100	4 1/4 x 5 1/2	6	1800	1590	Pr.	Par.	DR	DR	Ch.	Zen.
HM-4	100	4 1/4 x 5 1/2	6	900	2200	Pr.	Own	DR	DR	Ch.	Zen.
HM-4	175	5 1/2 x 7	6	900	2650	Pr.	Own	DR	DR	Ch.	Zen.
HM-4	175	5 x 7	6	900	2400	Pr.	Own	DR	DR	Ch.	Zen.
LM-40	200	5 x 7	6	1750	1500	Pr.	Par.	DR	DR	Ch.	Zen.
LM-40	200	5 x 7	6	1700	1500	Pr.	Par.	DR	DR	Ch.	Zen.
LM-44	250	5 x 7	6	2000	1095	Pr.	Par.	DR	DR	Ch.	Zen.
INTERNATIONAL											
H...	16-18	3 1/4 x 4	4	12000	290	Spl.	Joes	Bo.	Bo.	Bo.	Sch.
HERMATH											
1	3-4	3 1/4 x 4	1	800	175	Pu. & Spl.	Own	Bo.	Bo.	Ch.	Ka.
2	4-5	3 1/4 x 4	2	800	300	Pu. & Spl.	Own	Bo.	Bo.	Ch.	Ka.
3	6-8	3 1/4 x 4	2	800	325	Pu. & Spl.	Own	Bo.	Bo.	Ch.	Ka.
4	8-10	4 x 4	2	800	345	Pu. & Spl.	Own	Bo.	Bo.	Ch.	Ka.
5	12	3 1/4 x 4	4	1200	470	Pu. & Spl.	Own	Bo.	Bo.	Ch.	Ka.
6	16	3 1/4 x 4	4	1200	500	Pu. & Spl.	Own	Bo.	Bo.	Ch.	Ka.
7	20	4 x 6	4	1200	535	Pu. & Spl.	Own	Bo.	Bo.	Ch.	Ka.
8	35	4 1/2 x 5 1/2	4	1200	950	Pr.	Par.	Bo.	Bo.	Ch.	Sch.
9	50	4 1/2 x 5 1/2	4	1500	690	Pr.	Par.	Bo.	Bo.	Ch.	Sch.
10	65	4 1/2 x 5 1/2	6	1200	1500	Pr.	Par.	Bo.	Bo.	Ch.	Sch.
11	100	4 1/2 x 5 1/2	6	1800	1075	Pr.	Par.	Bo.	Bo.	Ch.	Sch.
12	125	4 1/2 x 5 1/2	6	1800	1100	Pr.	Own	DR	DR	Ch.	Sch.
13	150	5 x 5 1/2	6	1800	960	Pr.	Own	DR	DR	Ch.	Sch.
14	200	5 x 5 1/2	6	2000	1250	Pr.	Joes	DR	DR	Ch.	Sch.
LOCKWOOD											
21/4	2 1/4	3 1/4 x 3 1/2	1	900	110	In fuel			B.	Ster.	Sch.
3	4	4 x 4	1	900	135	In fuel			B. or M.	Ster.	Sch.
4	6	3 1/2 x 3 1/2	2	1000	160	In fuel			B. or M.	Ster.	Sch.
5	8	4 x 4	2	1000	210	In fuel			B. or M.	Ster.	Sch.
6	5	3 1/4 x 4	1	1000	160	Pu. & Spl.			M.	Ster.	Sch.
LONG ISLAND											
I...	15	3 1/4 x 4	4	1000	475	Spl.	Joes	El.	DR	Bo.	Ka.
25	25	3 1/4 x 4	4	2000	410	Spl.	Joes	El.	DR	Bo.	Ka.
30	30	4 x 5	4	1000	1100	Pr.	Joes	El.	DR	Bo.	Ka.
45	45	4 x 5	4	1800	850	Pr.	Joes	El.	DR	Bo.	Ka.
5	5	3 1/4 x 4 1/2	1	900	225	Spl.	Joes	Bo.	Bo.	Bo.	Ka.
52	10	3 1/4 x 4 1/2	2	900	320	Spl.	Joes	Bo.	Bo.	Bo.	Ka.
LION-TURTLE											
425	425	5 x 7	12	2000	1350	Pr.	Joes	Own	Deleo-Dual	A.C.	Zen.
MAYBACH ZEPPELIN											
52-5	110	2 11/16 x 6 5/8	6	1100	-----	Pr.	Own	Ger. Bo.	Robt. Bo.	Robt. Bo.	Own
W.L.	535	5 1/2 x 7 1/2	12	1600	2100	Pr.	Own	Com. Air	Robt. Bo.	Robt. Bo.	Own
200 CENTURY											
60	60	6 1/2 x 8 1/2	4	500	3400	Pr.	Own	El.	Bo.	Stitt	Str.
100	100	6 1/2 x 8 1/2	6	600	4500	Pr.	Own	El.	Bo.	Stitt	Str.
NIAGARA											
G...	5	3 1/4 x 4	1	1000	160	Pr.	Joes		Bo.	Ch.	Zen.
Spool.	15	2 1/2 x 4	4	1500	325	Pr.	Joes		Bo.	Ch.	Zen.
E.2	14	4 1/2 x 5 1/2	2	1000	450	Pr.	Own	LN	Bo.	Ch.	Sch.
E.4	25	4 1/2 x 5 1/2	4	1000	725	Pr.	Own	LN	Bo.	Ch.	Sch.
D.4	80	6 1/2 x 7	4	1000	1075	Pr.	Own	LN	Bo.	Ch.	Sch.
D.4	120	6 1/2 x 7	6	1000	1550	Pr.	Own	LN	Bo.	Ch.	Sch.
PACKARD											
IM-300	45	3 1/4 x 5	6	1800	625	Pr.	Par.	Dy.	DR	Ch.	Zen.
IM-357	60	3 1/4 x 5	8	1800	790	Pr.	Par.	Dy.	DR	Ch.	Zen.
IM-431	275	5 1/2 x 4 9/16	6	2500	875	Pr.	Joes	Bl.	DR	Ch.	Str.
IM-1242	550	5 1/2 x 4 9/16	12	2500	1140	Pr.	Joes	Bl.	DR	Ch.	Str.
PALMER											
77	2	3 x 3 1/2	1	1000	98	Spl.	Own	None	B. or M.	Ch.	May.
PIN#1	6	5 x 6	2	600	400		Own	None	B. or M.	Ch.	
PIN#2	12	5 x 6	2	600	750		Own	None	A.K. & M.	Ch.	
PIN#3	18	5 x 6	3	600	1000		Own	None	A.K. & M.	Ch.	
PIN#4	24	5 x 6	4	600	1250		Own	None	A.K. & M.	Ch.	
ZEL.	7	5 1/2 x 6	1	700	450		Own	None	B. or M.	Ch.	
ZEL.	18	5 1/2 x 6	2	800	800		Own	None	A.K. & M.	Ch.	
ZEL.	30	5 1/2 x 6	3	800	1000		Own	None	A.K. & M.	Ch.	
ZEL.	40	5 1/2 x 6	4	800	1300		Own	None	A.K. & M.	Ch.	
ZEL.	18	6 1/2 x 8	2	400	1600		Own	None	A.K. & M.	Ch.	
ZEL.	24	6 1/2 x 8	3	400	2000		Own	None	A.K. & M.	Ch.	
ZEL.	35	6 1/2 x 8	4	400	2400		Own	None	A.K. & M.	Ch.	
ZEL.	50	6 1/2 x 8	6	400	3800		Own	None	A.K. & M.	Ch.	
ZEL.	25	7 1/2 x 10	2	400	3000		Own	None	A.K. & M.	Ch.	
ZEL.	35	7 1/2 x 10	3	400	3500		Own	None	A.K. & M.	Ch.	
ZEL.	50	7 1/2 x 10	4	400	4200		Own	None	A.K. & M.	Ch.	
ZEL.	80	7 1/2 x 10	6	450	5600		Own	None	A.K. & M.	Ch.	
ZEL.	15	3 1/2 x 4	4	1500	375		Own	None	A.K. & M.	Ch.	
ZEL.	14	3 1/2 x 4 1/2	4	1200	725		Own	None	A.K. & M.	Ch.	
ZEL.	20	3 1/2 x 4 1/2	4	1200	725		Own	None	A.K. & M.	Ch.	
ZEL.	25-40	3 1/2 x 4 1/2	6	1400	1000		Own	None	A.K. & M.	Ch.	

Equipped with reduction gear  
Two Cycle

See page 73 for Key to Equipment Symbols

# AMERICA'S LEADING MARINE ENGINES

MAKE & MODEL	Horse Power	Bore & Stroke	No. of Cyl.	R.P.M.	Weight	Lubri-cation	Reverse Gear	Starting Device	Ignition System	Spark Plugs	Carbo-rator
<b>REDWING</b>											
K.	5	3 1/4 x 4 1/2	1	800	230	Spl.			Bo. M.	Ch.	Sch. or Sch.
KK.	8	3 1/4 x 4 1/2	2	800	420	Spl.	Par.	Au.	Bo. M.	Ch.	Sch. or Sch.
D.	14	2 3/4 x 4	4	1400	1 A 295	Spl.	Joes	Au.	Bo. M.	Ch.	Sch. or Sch.
AA.	24	3 1/4 x 4 1/2	4	1200	1 A 640	Spl. and Pr.	Par.	Au.	Bo. M.	Ch.	Sch. or Sch.
F.	36	4 1/16 x 5	4	1400	1 A 845	Pr.	Par.	Au.	Bo. M.	Ch.	Sch. or Sch.
B.	40	4 1/2 x 5	4	1400	1 A 865	Pr.	Par.	Au.	Bo. M.	Ch.	Sch. or Sch.
BB-4 MD.	50	4 1/2 x 6	4	1400	1 A 1200	Pr.	Par.	Au.	Bo. M.	Ch.	Sch. or Sch.
BB-4 HS.	70	4 1/2 x 6	4	1800	1 A 900	Pr.	Par.	Au. and L.N.	Bo. M.	Ch.	Sch. or Sch.
Big Chief.	60	5 x 7	4	1200	1 A 1700	Pr.	Par.	Au. and L.N.	Bo. M.	Ch.	Sch. or Sch.
Big Chief Special.	90	5 1/4 x 7	4	1200	1 A 1750	Pr.	Par.	Au. and L.N.	Bo. M.	Ch.	Sch. or Sch.
Arrow-Six.	80	3 1/4 x 4 1/2	6	2000	1 A 850	Pr.	Joes	Au.	Bo. M.	Ch.	Sch. or Sch.
BB-4 MD.	80	4 1/2 x 6	6	1400	1 I 150	Pr.	Par.	Au. or L.N.	Bo. M.	Ch.	Sch. or Sch.
BB-6 HS.	110	4 1/2 x 6	6	1800	1 A 1200	Pr.	Par.	Au. or L.N.	Bo. M.	Ch.	Sch. or Sch.
BB-6 Special MD.	100	5 x 6	6	1400	1 I 1600	Pr.	Par.	L.N.	Bo. M.	Ch.	Sch. or Sch.
BB-6 Special HS.	150	5 x 6	6	1800	1 A 1300	Pr.	Par.	L.N.	Bo. M.	Ch.	Sch. or Sch.
Big Chief 6.	110	5 x 7	6	1400	1 I 2400	Pr.	Joes	Au.	Bo. M.	Ch.	Sch. or Sch.
Big Chief Special 6.	150	5 1/4 x 7	6	1400	1 I 2450	Pr.	Joes	L.N.	Bo. M.	Ch.	Sch. or Sch.
REGAL					A 1800						
Y.	2	3 1/4 x 3 1/2	1	800	130	Pu.	John				
SA.	4	4 x 4 1/2	1	800	290	Pu.	Par.				
HA.	6	4 1/4 x 5 1/2	1	600	400	Pu.	Par.				
EA.	7	5 1/4 x 6 1/2	1	550	610	Pu.	Par.				
NB.	8	4 1/4 x 4 1/2	2	800	540	Pu.	Par.				
GB.	12-14	4 1/4 x 6	2	800	900	Pu.	Par.				
PB.	16	5 1/2 x 7	2	600	1050	McC. & Pu.	Par.				
LB.	20	6 1/2 x 8	2	450	1835	McC. & Pu.	Par.				
GC.	25-30	4 1/2 x 6	4	800	1325	Pu.	Par.				
LD.	30	6 1/2 x 8	3	800	2500	McC. & Pu.	Par.				
KC.	40	5 1/2 x 7	4	800	1900	McC. & Pu.	Par.				
LC.	40	6 1/2 x 8	4	400	2800	McC. & Pu.	Par.				
SC.	50	7 1/2 x 9	4	400	4600	McC. & Pu.	Par.				
GF.	40-50	4 1/2 x 6	6	900	1600	Pu.	McC. & Pu.				
KF.	75	5 1/2 x 7	6	800	2700	McC. & Pu.	Joes				
SCRIPPS											
E-2.	12-18	4 1/4 x 6	2	1000	525	Pr.	Par.	An.	Am. Bo.		Sch. or Sch.
F-4.	25-40	3 1/2 x 5	4	1400	600	Pr.	Own	DR.	Am. Bo.		Typ. High
F-4.	40-60	3 1/2 x 5	4	2000	550	Pr.	Own	DR.	Am. Bo.		Typ. High
F-6.	50	3 1/2 x 5	6	1600	825	Pr.	Own	DR.	Am. Bo.		Typ. High
F-6.	100	3 1/2 x 5	6	2000	750	Pr.	Own	DR.	Am. Bo.		Typ. High
F-6.	100-125	3 1/2 x 5	6	2600	750	Pr.	Own	DR.	Am. Bo.		Typ. High
100.	100	4 1/2 x 5 1/2	6	1600	1250	Pr.	Joes	DR.	Am. Bo.		Typ. High
160.	150	4 1/2 x 5 1/2	6	2200	1000	Pr.	Joes	DR.	Am. Bo.		Typ. High
162.	125	4 1/2 x 5 1/2	6	1600	1325	Pr.	Joes	DR.	Am. Bo.		Typ. High
170.	175	4 1/2 x 5 1/2	6	2200	1000	Pr.	Joes	DR.	Am. Bo.		Typ. High
172.	200	5 x 5 1/2	6	2200	1100	Pr.	Joes	DR.	Am. Bo.		Typ. High
202.											
SPEEDWAY											
K.	22-28	4 x 4 1/2	4	1400	550	Spl.	Own	Am. Bo.	Am. Bo.		Sch. or Sch.
Z.	35-44	4 1/4 x 5 1/2	4	1200	850	Spl.	Own	Am. Bo.	Am. Bo.		Sch. or Sch.
M.	48-75	5 1/2 x 7	4	1000	1950	Pr.	Own	Bl.	Bo. & DR.		Sch. or Sch.
MP.	155	5 1/2 x 7	6	1200	2025	Pr.	Own	Bl.	Bo. & DR.		Sch. or Sch.
M.	175-200	5 1/2 x 7	8	1200	2400	Pr.	Own	Bl.	Bo. & DR.		Sch. or Sch.
M.	180	5 1/2 x 7	6	1300	2200	Pr.	Own	Bl.	Bo. & DR.		Sch. or Sch.
M.	100-175	5 1/2 x 7	8	1000	2900	Pr.	Own	Bl.	Bo. & DR.		Sch. or Sch.
MP.	135	5 1/2 x 7	6	1000	2025	Pr.	Own	Bl.	Bo. & DR.		Sch. or Sch.
P.	80-115	6 1/2 x 8 1/2	6	600	4800	Pr.	Own	Bl.	Bo. & DR.		Sch. or Sch.
R.	300	7 x 8 1/2	6	1200	4000	Pr.	Own	Bl.	Bo. & DR.		Sch. or Sch.
STANDARD											
F1.	12	5 x 6 1/2	2	450	850	McC.	Own	Bo.	Dbl.	AC.	Sch. or Sch.
E1.	18	6 x 8	2	400	1200	McC.	Own	Bo.	Dbl.	AC.	Sch. or Sch.
F3.	24	5 x 6 1/2	4	450	1600	McC.	Own	Bo.	Dbl.	AC.	Sch. or Sch.
E2.	27	6 x 8	3	400	1800	McC.	Own	Bo.	Dbl.	AC.	Sch. or Sch.
E3.	37	6 x 8	4	400	2800	McC.	Own	Bo.	Dbl.	AC.	Sch. or Sch.
E4.	54	6 x 8	6	400	3200	McC.	Own	L. N.	Dbl.	AC.	Sch. or Sch.
HE4.	90	6 1/2 x 8	6	600	4200	McC.	Air rev.		Dbl.	AC.	Sch. or Sch.
N2.	220	10 x 11	6	460	6300	McC.					
STERLING											
Neptune.	12-15	5 1/2 x 7	2	500	1150	Pr.	Own	N.E.	N.E.	Ch.	Sch. or Sch.
Dauphin.	125-157	5 1/2 x 6 1/2	4	1650	1600	Pr.	Own	N.E.	N.E.	Ch.	Sch. or Sch.
Dauphin.	187-235	5 1/2 x 6 1/2	6	1650	2300	Pr.	Own	N.E.	N.E.	Ch.	Sch. or Sch.
Dauphin.	240-300	5 1/2 x 6 1/2	8	1550	3500	Pr.	Own	N.E.	N.E.	Ch.	Sch. or Sch.
Dauphin, medium.	72-110	5 1/2 x 6 1/2	4	1200	1700	Pr.	Own	N.E.	N.E.	Ch.	Sch. or Sch.
Dauphin, medium.	110-165	5 1/2 x 6 1/2	6	1200	2260	Pr.	Own	N.E.	N.E.	Ch.	Sch. or Sch.
Trident.	145-220	5 1/2 x 6 1/2	8	1200	3500	Pr.	Own	N.E.	N.E.	Ch.	Sch. or Sch.
Trident.	30-63	5 1/2 x 6 1/2	6	800	2300	Pr.	Own	N.E.	N.E.	Ch.	Sch. or Sch.
Trident.	45-94	5 1/2 x 6 1/2	8	800	2550	Pr.	Own	N.E.	N.E.	Ch.	Sch. or Sch.
Trident.	60-126	5 1/2 x 6 1/2	8	800	3500	Pr.	Own	N.E.	N.E.	Ch.	Sch. or Sch.
Dolphin, special.	180-190	5 1/2 x 6 1/2	4	1950	1550	Pr.	Own	N.E.	N.E.	Ch.	Sch. or Sch.
Dolphin, special.	275-290	5 1/2 x 6 1/2	6	1950	2275	Pr.	Own	N.E.	N.E.	Ch.	Sch. or Sch.
Seagull.	95-150	6 1/2 x 7 1/2	6	1800	1800	Pr.	Own	N.E.	N.E.	Ch.	Sch. or Sch.
Coast Guard.	100-225	6 1/2 x 7 1/2	6	1200	4100	Pr.	Own	N.E.	N.E.	Ch.	Sch. or Sch.
Coast Guard.	225-300	6 1/2 x 7 1/2	6	1500	3520	Pr.	Own	N.E.	N.E.	Ch.	Sch. or Sch.
Cheron.	25-55	5 1/2 x 6 1/2	4	800	2120	Pr.	Own	N.E.	N.E.	Ch.	Sch. or Sch.
Cheron.	100	5 1/2 x 6 1/2	4	1400	1670	Pr.	Own	N.E.	N.E.	Ch.	Sch. or Sch.
Cheron.	90	5 1/2 x 6 1/2	6	1200	2180	Pr.	Own	N.E.	N.E.	Ch.	Sch. or Sch.
Cheron.	130	5 1/2 x 6 1/2	6	1200	2500	Pr.	Own	N.E.	N.E.	Ch.	Sch. or Sch.
Cheron.	150	5 1/2 x 6 1/2	6	1500	2120	Pr.	Own	N.E.	N.E.	Ch.	Sch. or Sch.
Cheron.	35-85	5 1/2 x 6 1/2	6	800	2710	Pr.	Own	N.E.	N.E.	Ch.	Sch. or Sch.
Viking II.	125	5 1/2 x 9	6	600	6650	Pr.	Joes	N.E.	N.E.	Ch.	Sch. or Sch.
Viking II.	190	5 1/2 x 9	6	600	6650	Pr.	Joes	N.E.	N.E.	Ch.	Sch. or Sch.
Viking II.	300	5 1/2 x 9	6	900	6650	Pr.	Joes	N.E.	N.E.	Ch.	Sch. or Sch.
Viking II.	425	5 1/2 x 9	6	1200	6650	Pr.	Joes	N.E.	N.E.	Ch.	Sch. or Sch.
Viking II.	170	5 1/2 x 9	8	450	8500	Pr.	Joes	N.E.	N.E.	Ch.	Sch. or Sch.
Viking II.	250	5 1/2 x 9	8	600	8500	Pr.	Joes	N.E.	N.E.	Ch.	Sch. or Sch.
Viking II.	400	5 1/2 x 9	8	900	8500	Pr.	Joes	N.E.	N.E.	Ch.	Sch. or Sch.
Viking II.	565	5 1/2 x 9	8	1200	8500	Pr.	Joes	N.E.	N.E.	Ch.	Sch. or Sch.
Petrol.	120	5 1/2 x 6	6	1200	1470	Pr.	Own	DR.	DR.	Ch.	Sch. or Sch.
Petrol.	150	5 1/2 x 6	6	1500	1470	Pr.	Own	DR.	DR.	Ch.	Sch. or Sch.
Petrol.	180	5 1/2 x 6	6	1800	1470	Pr.	Own	DR.	DR.	Ch.	Sch. or Sch.
Petrol.	180	5 1/2 x 6	6	1800	1325	Pr.	Own	DR.	DR.	Ch.	Sch. or Sch.
Petrol.	200	5 1/2 x 6	6	2000	1325	Pr.	Own	DR.	DR.	Ch.	Sch. or Sch.
Petrol.	175	5 1/2 x 6	6	650	2475	Pr.	Own	DR.	DR.	Ch.	Sch. or Sch.

\*Equipped with reduction gear

See page 72 for Key to Equipment Symbols

# AMERICA'S LEADING MARINE ENGINES

Carb. ratio	MAKE & MODEL	Horse Power	Bore & Stroke	No. of Cyl.	R.P.M.	Weight	Lubri- cation	Reverse Gear	Starting Device	Ignition System	Spark Plugs	Carbo- reter
Sch. or Sh.	UNIVERSAL											
Sch. or Sh.	Marine N.	15	2 1/4 x 4	4	2000	330-373	Cir. & Spl.	Own	Cr. & Au.	B. or M.	Ch.	Zen.
Sch. or Sh.	Superior Medium											
Sch. or Sh.	Speed GLS.	35	3 1/4 x 4 1/2	4	2400	425	Pr.	Joes	Au.	B. or M.	Ch.	Zen.
Sch. or Sh.	Superior High											
Sch. or Sh.	Speed GLH.	45	3 1/4 x 4 1/2	4	3000	425	Pr.	Joes	Au.	B. or M.	Ch.	2 Zen.
Sch. or Sh.	Superior Special											
Sch. or Sh.	Racing GLR.	50	3 1/4 x 4 1/2	4	3000	300	Pr.	Joes	Hand	B. or M.	Ch.	2 Zen.
Sch. or Sh.	W.M.	8	4 1/2 x 4	1	1200	275	Cir. & Spl.	Joes	Hand	W.I.	Ch.	Til.
Sch. or Sh.	6-75	75	3 1/2 x 4 1/2	6	2700	635	Pr.	Joes	Au.	B. or M.	Ch.	Str.
Sch. or Sh.	6-85	85	3 1/2 x 4 1/2	6	3000	635	Pr.	Joes	Au.	B. or M.	Ch.	2 Str.
Sch. or Sh.	1-100	100	3 1/2 x 4 1/2	8	2700	700	Pr.	Joes	Au.	B. or M.	Ch.	Str.
Sch. or Sh.	1-120	120	3 1/2 x 4 1/2	8	3000	700	Pr.	Joes	Au.	B. or M.	Ch.	2 Str.
Sch. or Sh.	1-150	15	2 1/2 x 4	4	2000	443	Cir. & Spl.	Own	Cir. & Au.	B. or M.	Ch.	Zen.
Sch. or Sh.	1-175	35	3 1/4 x 4 1/2	4	2000	495	Pr.	Joes	Au.	B. or M.	Ch.	Zen.
Sch. or Sh.	1-200	45	3 1/4 x 4 1/2	4	2800	495	Pr.	Joes	Au.	B. or M.	Ch.	Zen.
Sch. or Sh.	1-225	75	3 1/4 x 4 1/2	6	2700	620	Pr.	Joes	Au.	B. or M.	Ch.	Str.
Sch. or Sh.	1-245	85	3 1/4 x 4 1/2	6	3000	725	Pr.	Joes	Au.	B. or M.	Ch.	2 Str.
Sch. or Sh.	1-260	100	3 1/4 x 4 1/2	8	2700	825	Pr.	Joes	Au.	B. or M.	Ch.	Str.
Sch. or Sh.	1-280	120	3 1/4 x 4 1/2	8	3000	825	Pr.	Joes	Au.	B. or M.	Ch.	2 Str.
Sch. or Sh.	UNITED STATES											
Sch. or Sh.	KML	5	3 1/4 x 4 1/2	1	800	165	Spl.	Par.	Hand	W.I.	Ch.	Til.
Sch. or Sh.	KM2	10	3 1/4 x 4 1/2	2	1000	260	Spl. & Pr.	Par.	Hand or El.	El.	Ch.	Til.
Sch. or Sh.	R.	7	4 1/2 x 6	1	800	575	Spl.	Par.	Hand	W.I.	Ch.	Sch.
Sch. or Sh.	HM2	15	4 1/2 x 6	2	800	750	Pr.	Par.	El.	El.	Ch.	Sch.
Sch. or Sh.	HM4	40	4 1/2 x 6	4	900	1250	Pr.	Par.	El.	El.	Ch.	Sch.
Sch. or Sh.	TM4	60	6 1/2 x 7	4	800	1750	Pr.	Par.	El.	El.	Ch.	Sch.
Sch. or Sh.	WD.	15	2 1/2 x 3 1/2	4	2000	260	Pr.	Par.	El.	El.	Ch.	Til.
Sch. or Sh.	VAN BLERCK											
Sch. or Sh.	CONTINENTAL											
Sch. or Sh.	25	17-45	2 1/2 x 4 1/2	6	2500	525	Pr.	Own	DR	DR	A.C.	Sch.
Sch. or Sh.	271	25-60	3 1/2 x 4 1/2	6	2200	625	Pr.	Own	DR	DR	A.C.	Sch.
Sch. or Sh.	281	58-90	3 1/2 x 5	6	2000	870	Pr.	Own	DR	DR	A.C.	Sch.
Sch. or Sh.	282	75-100	4 1/2 x 5 1/2	6	2000	1150	Pr.	Own	DR	DR	A.C.	Sch.
Sch. or Sh.	284	60-120	4 1/2 x 5 1/2	6	2000	1570	Pr.	Own	DR	DR	A.C.	Sch.
Sch. or Sh.	286	17-45	2 1/2 x 4 1/2	6	900	525	Pr.	Own	DR	DR	A.C.	Sch.
Sch. or Sh.	287	25-60	3 1/2 x 4 1/2	6	700	625	Pr.	Own	DR	DR	A.C.	Sch.
Sch. or Sh.	288	58-90	3 1/2 x 5	6	650	870	Pr.	Own	DR	DR	A.C.	Sch.
Sch. or Sh.	289	75-100	4 1/2 x 5 1/2	6	650	1150	Pr.	Own	DR	DR	A.C.	Sch.
Sch. or Sh.	290	60-120	4 1/2 x 5 1/2	6	650	1570	Pr.	Own	DR	DR	A.C.	Sch.
Sch. or Sh.	Van Blerck, Junior	25	2 11/16 x 3 1/2	4	4000	100	Pr.	Own	DR	DR	A.C.	Str.
Sch. or Sh.	WRIGHT											
Sch. or Sh.	Typical	500	5 1/4 x 6 1/4	12	1900	1860	Pr.	Own	L.N.	Se.	A.C.	Str.
Sch. or Sh.	High compression	650	5 1/4 x 6 1/4	12	2000	1860	Pr.	Own	L.N.	Se.	A.C.	Str.
Sch. or Sh.	CAR WOOD											
Sch. or Sh.	T-38	400	5 x 7	12	1800	1500	Pr.	Joes	Own	DR	Ch.	Zen.
Sch. or Sh.	T-38	500	5 x 7	12	2100	1550	Pr.	Joes	Own	DR	Ch.	Zen.

\*Equipped with reduction gear

\*\*Two Cycle

#### Key to Equipment Symbols

AK—Alwater Kent	Ch—Champion	El—Eisemann	Kn—Kingston	McC—McCORD	Se—Seintilla	St—Stewart
An—Anadolu	Cir—Circulation	El—Electric	LN—Leco Neville	NE—North East	Seh—Schebler	Str—Stromberg
Be—Bethlehem	Cry—Crank	Gr—Gravity	M—Magneto	Opt—Optional	Spec—Special	Til—Tillotson
Bo—Boath	DR—Delco-Remy	HD—Heavy Duty	May—Mayer	Par—Paragon	Spl—Splash	Wl—Wico
Bi—Bijar	Dis—Distributor	HS—High Speed	Ma. & Br.—Make and Break	Pr—Pressure	Sd—Splitdorf	Zen—Zenith
Br—Battery	Dr—Drip	Hol—Holley	Me—Mechanical Oiler	Pu—Pump	Ster—Sterling	
Ca—Carlyle	Dy—Dyno	John—Johnson	Mil—Miller	Ra—Rajah		

#### THE NEW BESSEMER DIESEL

Great strides in the development of large diesel engines have been made in the past few years and great numbers have been built for all types and classes of ships and power plants, but comparatively little attention has been paid to the refinement and development of small diesel engines—those suitable for smaller boats, generating sets and small power plants where quietness and smoothness of operation is a prime requisite as well as medium light weight combined with reliability.

In the EP line Bessemer have given the results of five years experimentation and development on this one size alone. Two engines of this size were built five years ago of the fully enclosed type in addition to some seventy odd of the open push rod type. In addition to these another type of the same size was designed and given a thorough test. Since last summer continuous tests on the EP engine have been run and engines for both generating sets and of the direct reversible type have been built.

There are 12 generating sets of the three cylinder, 50 kw size building; four of them for two new yachts now being built at Lawleys (one yacht 225 foot long—another 165 ft.), also 8, 150 h.p. at 500 r.p.m., two as generating sets and six for the main power for smaller yachts.

The Bessemer EP Engine is 7 1/2-inch bore, 10 1/2-inch stroke and rated 25 h.p. per cylinder at 500 r.p.m. Typical of all Bessemer engines the crankshaft is of very generous diameter being 5 inches on both main and pins. With aluminum alloy pistons the rating per cylinder is almost 40 percent. more due to lighter reciprocating parts and greater r.p.m.

The engine is of moderately light weight construction, weighing from 50 to 70 pounds per horsepower depending on the type of construction and service. Special attention has been given

to strength as well as medium light weight.

Special attention has been paid to design for aluminum construction. The base has the cylinder studs running clear through with the nut on the bottom side which avoids strain on threads in aluminum.

The water box is unique in that for assembling or dismantling all hold-down nuts are readily accessible without the use of special wrenches.

The fuel injection system is of the regular Bessemer type so successfully used and widely copied. The cylinder heads are cast separate with cored intake passages, which lead to the intake parts concealed in the cylinder water box. The crank-shaft, base, center frame and water box are each cast in one piece for a three cylinder or a four, six or an eight.

#### TWO POWERFUL RACING TWINS

Keeping pace with the insistent demand for more and more power in outboard units to drive the little speedsters at ever increasing rates of speed, the Caille Motor Company, of Detroit, Michigan, is bringing out two new hand made racing models, especially designed for the racing driver who must have every available ounce of power.

The new motors are to be known as the Lightning Twins, Flash and Streak. The Flash is their model 36 and is a B class motor designed to develop 16 1/2 h.p. at 6000 r.p.m. on a weight of 67 pounds. The Streak, model 46, belongs in Class C, developing 22 h.p. at 5000 r.p.m. The weight of the Streak is 97 pounds.

The design of these motors follows the same general lines as the Caille 34 and 44 but the new models are hand made and refinements are included to produce the very maximum of power for the given weights and piston displacements.

# LEADING DIESEL ENGINES

MODEL	Horse Power	Bore and Stroke	No. of Cyls.	R.P.M.	Weight	Lubrication	Reverse Gear	Starting Device	Ignition System
<b>BENZ DIESEL</b>									
SH-19.	50		4	750	3900	Pr.	Own	Air or	
SH-19.	75		6	750	4600	Pr.	Own	Air or	
RH-24.	60		4	500	4800	Pr.	Own	Air	
RH-24.	90		6	500	6600	Pr.	Rev.	Air	
<b>BESSEMER</b>									
E-3-MG.	60		3	400	9700	Pr.	Own	Air	
E-4-MG.	80		4	400	11900	Pr.	Own	Air	
E-4-DR.	125-150		6	475	12000	Pr.	Rev.	Air	
F-3-MG.	85		3	350	12500	Pr.	Own	Air	
F-4-MG.	110		4	350	16000	Pr.	Own	Air	
F-4-DR.	170		6	350	21000	Pr.	Rev.	Air	
G-3-MG.	110		3	300	18500	Pr.	Own	Air	
G-4-MG.	150		4	300	25500	Pr.	Own	Air	
G-4-DR.	230		6	300	29900	Pr.	Rev.	Air	
GX-4-DR.	300		6	350	31000	Pr.	Rev.	Air	
JR-4-DR.	320		6	350	35500	Pr.	Rev.	Air	
JR-4-DR.	425		8	350	42500	Pr.	Rev.	Air	
KR-4-DR.	500		6	275	70000	Pr.	Rev.	Air	
KR-6-DR.	660		8	275	81500	Pr.	Rev.	Air	
LR-4-DR.	700		6	260	41000	Pr.	Rev.	Air	
LR-6-DR.	930		8	260	52500	Pr.	Rev.	Air	
MR-4-DR.	930		6	250	120000	Pr.	Rev.	Air	
MR-6-DR.	1250		8	250	154000	Pr.	Rev.	Air	
MR-6-DR.	1500		8	300	149000	Pr.	Rev.	Air	
<b>BUDA</b>									
DM-4.	100	6 x 8	4	1000		Pr.	Joes		
<b>COLO DIESEL</b>									
BR 1.	10	5 x 7	1	750	880	Pr.	Joes	Hand	
BR 2.	20	5 x 7	2	750	1200	Pr.	Joes	Hand	
BR 3.	30	5 x 7	3	750	1500	Pr.	Joes	Hand, Air	
BR 4.	40	5 x 7	4	750	1800	Pr.	Joes	or Electric	
<b>CUMMINS</b>									
U.	8-10	4 1/4 x 6	1	1000	1100	Pr.	Joes	El.	
U.	16-20	4 1/4 x 6	2	1000	1400	Pr.	Joes	El.	
U.	24-30	4 1/4 x 6	3	1000	1700	Pr.	Joes	El.	
U.	32-40	4 1/4 x 6	4	1000	2075	Pr.	Joes	El.	
U.	48-60	4 1/4 x 6	6	1000	2900	Pr.	Joes	El.	
K.	20	6 1/2 x 9	1	600	2500	Pr.	Joes	Air or El.	
K.	40	6 1/2 x 9	2	600	3100	Pr.	Joes	Air or El.	
K.	60	6 1/2 x 9	3	600	3800	Pr.	Joes	Air or El.	
K.	85-110	6 1/2 x 9	4	800	4500	Pr.	Joes	Air or El.	
K.	125-170	6 1/2 x 9	6	800	6000	Pr.	Joes	Air or El.	
<b>HILL DIESEL</b>									
6-8		4 3/4 x 8	1	550	1400	Pr.	Joes	Hand	
20-25		5 x 7	2	1000	1400	Pr.	Joes	Hand or El.	
30-37		5 x 7	3	1000	2000	Pr.	Joes	Air or El.	
40-50		5 x 7	4	1000	2600	Pr.	Joes	Air or El.	
60-75		5 x 7	6	1000	3800	Pr.	Joes	Air or El.	
60-80		6 x 10	4	800	5400	Pr.	Joes	Air	
90-120		6 x 10	6	800	7400	Pr.	Joes	Air	
<b>KROMHOUT DIESEL</b>									
Mo.	9	6 1/2 x 6 3/4	1	600	1500	Pr.	Own	Hand	
Mo.	15	7 1/2 x 8	1	500	2100	Pr.	Own	Hand	
Mo.	22	9 x 9 1/2	1	440	3500	Pr.	Own	Air	
2M1.	30	7 1/2 x 8	2	500	3500	Pr.	Own	Air	
2M1.	44	9 x 9 1/2	2	440	4700	Pr.	Own	Air	
2M2.	60	10 1/4 x 10 1/4	2	390	6000	Pr.	Own	Air	
2M3.	80	11 1/4 x 12 1/4	2	350	8700	Pr.	Own	Air	
2M4.	100	13 1/4 x 14	2	320	11000	Pr.	Own	Air	
3M3.	120	11 1/4 x 12 1/4	3	320	14200	Pr.	Own	Air	
3M4.	150	13 1/4 x 14	3	320	17100	Pr.	Own	Air	
4M4.	200	13 1/4 x 14	4	320	23400	Pr.	Own	Air	
<b>MAYBACH-ZEPPELIN</b>									
G4.	150	8 1/2 x 7 1/2	6	1300	2650	Pr.	Own	Air	
<b>NELSECO</b>									
MI-15.	250	10 1/2 x 15	6	350	26400	Pr.	Rev.		
MI-15.	350	12 1/2 x 18	6	280	40200	Pr.	Rev.		
MI-22.	550	15 x 22	6	250	77000	Pr.	Rev.		
MI-53.	1000	20 1/2 x 20 1/2	6	250	184000	Pr.	Rev.		
GV-24.	600	18 1/2 x 24	6	205	120000	Pr.	Rev.		
<b>SPEEDWAY</b>									
D.	300		6	700	7600				
<b>STANDARD</b>									
AE4.	40-60	6 x 8	4	600	3200	Pr.	Gear	Air	
A13.	75	8 1/2 x 12	3	350	9000	Pr.	Rev.	Air	
A13.	75	8 1/2 x 12	3	350	12000	Pr.	Rev.	Air	
A14.	100	8 1/2 x 12	4	350	10500	Pr.	Rev.	Air	
A14.	100	8 1/2 x 12	4	350	13500	Pr.	Rev.	Air	
A14.	100	8 1/2 x 12	4	350	16000	Pr.	Gear	Air	
A16.	150	8 1/2 x 12	6	350	13500	Pr.	Rev.	Air	
A16.	150	8 1/2 x 12	6	350	18000	Pr.	Rev.	Air	
AN6.	220	10 x 14	6	300	20000	Pr.	Rev.	Air	
AQ.	330	12 x 17	6	300	38000	Pr.	Rev.	Air	
QQ.	330	12 x 17	6	275	56000	Pr.	Rev.	Air	
QQ.	400	13 1/2 x 17	6	275	60000	Pr.	Rev.	Air	

Key to Symbols.

— 2 Cycles

Com.—Compression

El.—Electric

Pr.—Pressure

Rev.—

# LEADING DIESEL ENGINES

MODEL	Horse Power	Bore and Stroke	No. of Cyls.	R.P.M.	Weight	Lubrication	Reverse Gear	Starting Device	Ignition System
TEHR									
0-4	65	5 x 7	4	1200	1800	Pr.	Own	El.	Com.
0-4	100	5 x 7	6	1200	2200	Pr.	Own	El.	Com.
0-4	90	6 x 8	4	1000	2300	Pr.	Own	El.	Com.
0-4	140	6 x 8	6	1000	2900	Pr.	Own	El.	Com.
0-4	225	7 1/2 x 9 1/2	6	900	4500	Pr.	Rev.	Air	Com.
0-4	150	7 1/2 x 9 1/2	4	900	4500	Pr.	Own	El.	Com.
0-4	225	7 1/2 x 9 1/2	6	900	5500	Pr.	Own	El.	Com.
0-4	300	8 1/2 x 11	6	750	7500	Pr.	Rev.	Air	Com.
0-4	375	9 1/2 x 12	6	700	12000	Pr.	Rev.	Air	Com.
0-4	500	10 1/2 x 13	6	700	14000	Pr.	Rev.	Air	Com.
0-4	600	11 1/2 x 14	6	650	16500	Pr.	Rev.	Air	Com.
0-4	700	12 1/2 x 15	6	600	19000	Pr.	Rev.	Air	Com.
1100-1500		16 x 18	6	Opt.	45000	Pr.	Rev.	Air	Com.
1100-1500	600	8 1/2 x 11	12	750	10500	Pr.	Rev.	Air	Com.
1100-1500	750	9 1/2 x 12	12	700	17600	Pr.	Rev.	Air	Com.
1100-1500	1000	10 1/2 x 13	12	700	20000	Pr.	Rev.	Air	Com.
1100-1500	1200	11 1/2 x 14	12	650	24000	Pr.	Rev.	Air	Com.
1100-1500	1400	12 1/2 x 15	12	600	27000	Pr.	Rev.	Air	Com.
1100-1500	2500-3000	16 x 16	12	Opt.	65000	Pr.	Rev.	Air	Com.
<b>INDEX GENERATING SETS</b>									
0-2	15KW	5 x 7	2	1000	1700	Pr.		El.	Com.
0-2	35KW	5 x 7	4	1000	3100	Pr.		El.	Com.
0-2	50KW	5 x 7	6	1000	3800	Pr.		El.	Com.
0-2	23KW	6 x 8	2	800	2200	Pr.		El.	Com.
0-2	45KW	6 x 8	4	800	4200	Pr.		El.	Com.
0-2	70KW	6 x 8	6	800	5000	Pr.		El.	Com.
<b>DETROIT</b>									
DET	100	6 1/2 x 8	6	600	7700	Pr.	Own	Air	
DET	150	8 x 11	6	450	13500	Pr.	Own	Air	
DET	150	8 x 11	6	450	13000	Pr.	Rev.	Air	
DET	175	8 1/2 x 11	6	450	13000	Pr.	Rev.	Air	
DET	110	8 1/2 x 11	6	450	11000	Pr.	Own	Air	
DET	200	9 1/2 x 14	6	350	21000	Pr.	Rev.	Air	
DET	300	10 x 14	6	450	21000	Pr.	Rev.	Air	
DET	225	11 x 14	6	250	44000	Pr.	Rev.	Air	
DET	400	14 x 18	6	250	67000	Pr.	Rev.	Air	
DET	800	12 1/2 x 18	8	250	90000	Pr.	Rev.	Air	
DET	500	14 x 15	6	450	110000	Pr.	Rev.	Air	
DET	800	16 1/2 x 26	6	250	110000	Pr.	Rev.	Air	

### Key to Symbols.

—4-Cycle

Com.—Compression

El.—Electric

Pr.—Pressure

Rev.—Reversible

## Specifications of American Outboard Engines

Model	Horse Power	Piston Disp.	Bore and Stroke	No. of Cyls.	R. P. M.	Weight	Lubrication	Starting Device	Ignition	Spark Plugs	Carburetor
<b>CARLISLE</b>											
2 1/2	12.57	2 x 2		2	1200	45	In Fuel	Cord	BoFiM	Ch	Own
8	19.63	2 1/2 x 2		2	2800	65	In Fuel	Cord	BoFiM	Ch	Own
12	19.63	2 1/2 x 2		2	5400	65	In Fuel	Cord	BoFiM	Ch	Til
16	29.70	2 1/2 x 2 1/2		2	4500	95	In Fuel	Cord	BoFiM	Ch	Til
<b>ELIOT</b>											
50	73.63	2 1/2 x 3		5	4000	145	Pr	Cord	Se	Ch	Zen
<b>ELIOT</b>											
Lightweight	8	10.2	2 x 1 1/2	2	3000	39	In Fuel	Hand	AK	Ch	Own
Service Speedster	19.63	2 1/2 x 2		2	-----	64	In Fuel	Hand	AK	Ch	Own
Hi-Speed Speedster	19.63	2 1/2 x 2		2	-----	63	In Fuel	Hand	AK	Ch	Own
Service Quad.	49.74	2 1/2 x 2 1/2		4	4500	-----	In Fuel	Hand	AK	Ch	Own
Hi-Speed Quad.	49.74	2 1/2 x 2 1/2		4	5500	-----	In Fuel	Hand	AK	Ch	Own
<b>EVINRUDE</b>											
U-Speedster	20	29.6 x 2 1/2		2	4000	95	In Fuel	Cord	M	Ch	Own
II-Fastwin	14	19.93	2 1/2 x 2 1/2	2	4000	75	In Fuel	Cord	M	Ch	Own
F-Fastwin	6	13.98	2 1/2 x 2	2	4000	55	In Fuel	Cord	M	Ch	Own
H-Sportwin	2 1/2	9.42	2 x 1 1/2	2	2600	44	In Fuel	Cord	M	Ch	Own
A-Utility Single	2	11.5	2 1/2 x 2 1/2	1	1000	72	In Fuel	Cord	M	Ch	Own
<b>HARTFORD</b>											
Sunny Twin	12	19.63	2 1/2 x 3	4	4600	60	In Fuel	Cord	BoFiM	-----	Til
<b>JOHNSON</b>											
Sea Horse Single	1 1/2	4.71	2 x 1 1/2	1	2300	26	In Fuel	Cord	Fi M	Ch	Own
Sea Horse 3	8	9.42	2 x 1 1/2	2	2600	37	In Fuel	Release	Fi M	Ch	Own
Sea Horse 10	10	19.93	2 1/2 x 2 1/2	2	2600	65	In Fuel	Release	Fi M	Ch	Own
Sea Horse 14	14	19.78	2 1/2 x 2 1/2	2	2600	90	In Fuel	Release	Fi M	Ch	Own
Sea Horse 16	16	19.93	2 1/2 x 2 1/2	2	3300	98	In Fuel	Release	Fi M	Ch	Own
Sea Horse 32	32	39.66	2 1/2 x 2 1/2	4	3300	116	In Fuel	Release	Fi M	Ch	Own
<b>LOCKWOOD</b>											
A	7	13.86	3.1 x 2	2	4000	50	In Fuel	Cord	ElFiM	Ch	Own
B	10	19.94	2 1/2 x 2 1/2	2	4200	72	In Fuel	Cord	ElFiM	Ch	Own
Racing Child.	14	19.94	2 1/2 x 2 1/2	2	5000	-----	In Fuel	Cord	ElFiM	Ch	Own

### Key to Symbols

\*—4-Cycle  
Bo—Bosch  
Ch—Champion

El—Eisemann  
Fi—Flywheel  
Pr—Pressure

Se—Seintilla  
Til—Tillotson  
Zen—Zenith  
AK—Atwater Kent

# SPECIFICATIONS OF OUTBOARD BOATS

Trade Name	Type	Price	Length	Beam	Weight	Frames	Planking	No. Persons	Speed Claimed	Equipment
<b>Acme Boat Co., Miamisburg Ohio</b>										
Wasp	Step hydro	\$185	11-0	4-0	125	Aircraft spruce	Cedar	1	A-25, B-35, C-40, D-45	.....
Wasp	Step hydro	225	11-0	4-0	135	Aircraft spruce	Mahogany	1	A-25, B-35, C-40, D-45	.....
Viking	V bottom run-about	285	16-0	4-6	315	Aircraft spruce	Cedar	6	B-20, C-25, D-30	EFLX
Viking	V bottom run-about	375	16-0	4-6	350	Aircraft spruce	Mahogany	6	B-20, C-25, D-30	EFLX
Cruiser	V bottom cruiser	750	18-0	5-5	740	Aircraft spruce	Double cedar	2	B-10, C-14, D-20 (in cabin)	EFHLP
<b>American Steel Boat Corporation, Boston, Mass.</b>										
Baby Steelcraft	.....	290	12-4	4-6	...	None	Steel	4	C-30	C X
.....	...	15-0	...	...	...	...	...	...	.....	.....
.....	...	21-0	...	...	...	...	...	...	.....	.....
<b>Airships, Inc., Hammondsport, N. Y.</b>										
Speed	Stepless	350	16-0	4-4	285	Oak & spruce	Mahogany	6	C-32	.....
Aqua	Step hydro	250	12-0	4-4	140	Mahogany	Mahogany	1	B-30, C137	.....
Step	Step runabout	300	14-0	4-4	250	Oak & spruce	Mahogany	3	C-35	.....
<b>Alloy Boat Co., Buffalo, N. Y.</b>										
Sport Slipper	Model SS	495	14-3	5-2	325	Wood	Metal	6	.....	.....
Slipabout	Model B	395	11-10	4-8	285	Wood	Metal	4	.....	.....
Super Slipper	Model S	247	11-2	4-0	145	Wood	Metal	2	.....	.....
Standard Slipper	Model S	195	11-2	4-0	120	Wood	Metal	2	.....	.....
Midget	Model M	115	8-0	4-0	90	Wood	Metal	1	.....	.....
<b>L. Bossert &amp; Sons, Inc., Brooklyn, N. Y.</b>										
Pirate Kid	Plane	265	12-0	4-2	...	Oak	Mahogany	2	.....	.....
Pirate, Jr.	Runabout	289	14-0	4-3	...	Oak	Mahogany	4	.....	.....
<b>Boyd Martin, Delphi, Ind.</b>										
Bullet	Step	{ 175	11-0	3-8	95	Spruce	Cedar, mahog.	1	.....	CL
		185				Mahogany				CL
Sr. Bullet	Step	225	12-0	4-0	140	Spruce	Cedar, mahog.	1	.....	CL
		195				Mahogany				CL
Falcon	Step	165	14-0	4-0	115	Spruce	Cedar	3	.....	CL
Imperial	Step	250	14-0	4-8	175	Mahogany	Mahogany	4	.....	CL
Mercury	Stepless	225	16-0	4-6	240	Spruce	Cedar	6	.....	CL
Commodore	Stepless	495	18-0	5-5	325	Oak	Mahogany	7	.....	CL
18' Barbara	Stepless	{ 175	18-0	5-2	275	Oak	Cypress	8	.....	CL
		160								CL
16' Barbara	Stepless	160	16-0	4-6	215	Oak	Cypress	8	.....	CL
Diana	Stepless	{ 295	16-0	4-6	275	Spruce	Cedar, mahog.	6	.....	CL
		350				Mahogany				CL
<b>Brooks Boat Co., Saginaw, Mich.</b>										
B-Stepper	V bottom	145	11-6	3-11	110	Spruce	Cypress	2	B-32, C-37	.....
C-Stepper	V bottom	155	12-4	4-3	125	Spruce	Cypress	3	C-33, D-37	.....
Giant-Stepper	V bottom	250	14-0	5-0	192	Spruce	Cypress	4	C-30, D-35	C
Baby Buzz	V bottom	185	16-0	3-11	230	Oak	Cypress	6	C-28, D-32	.....
Hydro Runabout	V bottom step	450	18-0	5-0	450	Spruce	Cypress	6	D-24	CEL
Cruiser	Round bottom	...	20-0	7-0	...	Oak	Cypress	..	C-12, Q-13	CEL
<b>Cape Cod, Wareham, Mass.</b>										
14' Skiff	.....	61	14-0	4-3	...	...	...	..	B-7	.....
Fiddler	.....	86	12-0	3-6	...	...	...	..	B-20	.....
Eureka	.....	187	13-7	4-6	...	...	...	..	C-20	.....
15' Seagoing	.....	198	15-0	4-6	...	...	...	..	C-12	.....
Exocetus	.....	123	8-0	4-0	...	...	...	..	C-30	.....
Speed Hull	.....	187	12-0	3-6	...	...	...	..	C-30	.....
<b>Chase-Emerson Corp., New York, N. Y.</b>										
Runabout Vee	Vee	...	16-0	4-6	...	Spruce	Mahogany	4	C-25	CEL
<b>Cute Craft, Inc., Fall River, Mass.</b>										
Bi-Plane	Bi-plane	135	8-8½	3-11	95	Spruce	Mahogany	1-2	A-24, B-35, C-39	.....
Meteor	Step	225	11-4	3-11	115	Spruce	Mahogany	1-2	B-35, C-40	.....
Sea Horse	Bi-plane Step	375	14-7	3-11	300	Spruce	Mahogany	4	C-33	.....
<b>Dunphy Boat Co., Eau Claire, Wis.</b>										
Sand Dab	Vee	...	16-0	4-10	...	Cedar or	Mahogany	4	C-34	.....
Sand Dab	Vee	375	17-0	4-8	...	Cedar or	Mahogany	6	C-30	.....
Sand Dab	Vee	...	18-0	4-10	...	Cedar or	Mahogany	6	.....	.....
<b>Dwight Lumber Co., Detroit, Mich.</b>										
Dee-Wite	Runabout	535	16-0	4-6	490	Oak	Double mahog.	6	D-32	CL
<b>Fairchild Airplane Corp., 41 West 43rd, N. Y. C.</b>										
Minima	Racer	255	10-3	4-3	100	Mahogany	Mahogany	1	A-25, B-35, C-40, D-41	.....
Aero	Racer	330	12-0	4-3	120	Mahogany	Mahogany	2	B-35, C-40, D-41	.....
Maxima	Family	295	16-0	5-0	300	Spruce	Mahogany	6	B-20, C-26, D-30	CEJLPW
Superba	Sport	575	18-0	5-0	350	Spruce	Mahogany	4	B-20, C-26, D-30	CEJLPW
Voyaguer	Cruiser	795	23-0	6-0½	1000	Oak	Mahogany sleeps 3	C-15, D-21	CEJLPW	CEJLPW
<b>Fay &amp; Bowen Co., Geneva, N. Y.</b>										
Middy	Displacement	...	16-0	4-4	320	Oak	Mahogany	6	D-27	.....
Static	Hydroplane	...	13-9	3-11	125	Spruce	Mahogany	2	D-40	.....
Baby Static	Hydroplane	...	11-9	3-9	90	Spruce	Mahogany	1	C-40	.....

Key to Equipment Symbols: C—Cushions; E—Fire extinguisher; F—Flag pole; H—Boat hook; J—Life jackets; L—Running water pump; P—Pump; W—Whistle; X—Paddle.

# SPECIFICATIONS OF OUTBOARD BOATS

Equipment	Trade Name	Type	Price	Length	Beam	Weight	Frames	Planking	No. Persons	Speed Claimed	Equipment
<b>Gesswein Boat Corp., Brooklyn, N. Y.</b>											
FLX	Thoroughbred, Jr.	Runabout	635	16-0	5-0	425	Oak	Mahogany	7	D-25	CELPW
FLX	Thoroughbred, Pup	Racer	365	11-6	4-0	160	Mahogany	Mahogany	1-2	D-35	CELPW
FHLP	Thoroughbred Cruiser	Racer	185	9-6	4-0	90	Mahogany	Mahogany	1	D-35	CELPW
<b>Herbst Boat Works, Wilmington, N. C.</b>											
Junior A	Plane	165	9-0	3-8	80	Oak	Mahogany	..	A-25	.....	
Special B	Plane	225	10-6	3-8	100	Oak	Mahogany	..	B-26	.....	
Special C	Plane	255	10-6	3-11	135	Oak	Mahogany	..	C-35	.....	
<b>Hemming Larsen, Marinette, Wisc.</b>											
Typhoon	Step plane	165	13-6	4-1	110	Spruce	Cedar	4	B-20, C-28, D-37	.....	
Trade Wind	Sea skiff	215	15-6	4-6	220	White oak	Cedar	6	D-25	.....	
<b>Gordon B. Hooton, Grand Rapids, Mich.</b>											
Model R	Plane	180	9-9	3-4	88	Spruce	Mahogany	..	B-30	.....	
Safety Plane	Plane	265	13-8	4-0	145	Spruce	Mahogany	4	D-40	.....	
Wild Cat	Plane	...	11-6	...	...	Spruce	Mahogany	2	C-30, D133	.....	
Vee Plane	Plane	...	15-0	4-4	...	Spruce	Mahogany	5	.....	.....	
<b>Isle LaPlume, LaCrosse, Wisc.</b>											
De Luxe	V bottom	225	16-0	4-3	...	.....	Mahogany	6	B-15, D-35	.....	
Runabout	stepless										
De Luxe	V bottom	235	14-0	4-4	...	.....	Mahogany	4	B-20, D-40	.....	
Step-hydro	step hydro										
De Luxe	V bottom	375	18-0	4-6	...	.....	Mahogany	8	B-15, D-40	.....	
Runabout	stepless	195	13-0	4-5	...	.....	Mahogany	2	B-30, C-40	.....	
Racer	Step										
Cruiser	V bottom	...	20-0	6-0	...	.....		2	.....	.....	
<b>D. N. Kelley, Fairhaven, Mass.</b>											
Baby Whale	Step plane	225	14-0	4-0	110	Spruce	Mahogany	2	.....	.....	
Baby Whale	Step plane	225	12-0	4-0	100	Spruce	Mahogany	2	.....	.....	
Baby Whale	Round bottom	235	11-0	4-11	110	Oak	Mahogany	6	.....	.....	
Tender	Round bottom	250	13-0	4-11	135	Oak	Mahogany	7	.....	.....	
Baby Whale	Round bottom	350	15-0	5-0	260	Oak	Cedar	9	.....	CLW	
Harpoon	Step plane	260	14-0	4-0	150	Spruce	Mahogany	3	.....	C	
Family Boat	Round bottom										
Baby Whale	Step plane										
<b>Kennebec Canoe Co., Waterville, Maine</b>											
Semi-Runabout	Runabout hydro	344	16-0	4-8	350	Oak	Cedar	7	C-24, D-29	CL	
Runabout	De Luxe	445	16-0	4-8	350	Oak	Cedar	7	.....	CL	
Comet	Hydro	329	14-0	4-3	270	Oak	Cedar	5	B-24, C-28, D-30	CL	
Porpoise	Round bottom	309	16-0	4-8	340	Oak	Cedar	7	B-22, C-25, D-28	CL	
Ken-Go	Step	215	12-0	4-3	160	Spruce	Cedar	..	C-35, D-35	CL	
Joy Boy	Square stern										
Yankee Flyer	sponson	159	15-6	3-6	135	.....	Cedar	5	B-23	CL	
	Hydro	265	16-0	4-3	225	.....	Cedar	6	B-22, C-26, D-28	CL	
<b>Kirk's Boat Works, Belhaven, N. C.</b>											
Family Runabout	V	170	16-0	3-10	250	Spruce	Cedar	4	C-25	L	
Runabout	V	250	18-0	4-0	350	Spruce	Cedar	6	C-20	L	
Cruiser	V	375	18-0	5-0	600	Spruce	Cedar	6	C-16, D-20	L	
Cruiser	V	875	22-0	7-0	1000	Spruce	Cedar	4	C-10, D-13	L	
Hydroplane	V	750	20-2	6-6	850	Spruce	Cedar	4	C-10, D-13	L	
Row Boat	V	150	12-6	3-9	115	Spruce	Cedar	..	C-12, D-15	L	
	V	125	14-0	3-10	130	Spruce	Cedar	..	C-36, D-40	L	
<b>Laconia Car Co., Laconia, N. H.</b>											
Speedster	Runabout	199	12-4	4-0	200	.....	Mahogany	3	B-19, C-25, D-28	CEFJLW	
Sportster	Runabout	300	16-0	4-4	300	.....	Mahogany	5	B-26, C-32, D-34	CEFJLW	
Special	Runabout	...	16-0	4-4	350	.....	Mahogany	5	B-20, C-27, D-30	CEFJLW	
<b>Ludington Aircraft, Inc., Philadelphia, Pa.</b>											
Ludington	Hydro	250	14-0	4-1	145	Aircraft spruce	.....	..	B-35, C-40	.....	
<b>Lyman Boat Works, Sandusky, Ohio</b>											
Speed tender		100	9-0	4-6	125	Oak	Ced. or cypress	4	.....	.....	
Speed tender		200	11-0	4-6	155	Oak	Ced. or cypress	5	.....	.....	
Sea skiff		215	13-0	4-8	200	{ Oak	Ced. or cypress	5	.....	.....	
		290			225	}					
Sea skiff		225	15-0	4-8	215	{ Oak	Ced. or cypress	6	.....	.....	
		310			240	}					

Key to Equipment Symbols: C—Cushions; E—Fire Extinguisher; F—Flag pole; H—Boat hook; J—Life jackets; L—Running lights; P—Pump; W—Whistle; X—Paddle.

# SPECIFICATIONS OF OUTBOARD BOATS

Trade Name	Type	Price	Length	Beam	Weight	Frames	Planking	No. Persons	Speed Claimed	Equipment
<b>Mullins Mfg. Corp., Salem, Ohio</b>										
Sea Hawk	Clinker	112	14-0	4-0	280	Oak	Armclo metal	5	A-10	.....
Sea Hawk Standard	Hydro	190	16-0	3-10	300	Oak	Armclo metal	6	B-20, C-25, D-28	.....
Sea Hawk Standard	Hydro	275	16-0	3-10	200	Oak	Aluminum	6	B-22, C-28, D-30	.....
Sea Hawk Sportsman	Hydro	220	16-0	3-10	325	Oak	Armclo metal	6	B-20, C-25, D-28	.....
Sea Hawk Sportsman	Hydro	305	16-0	3-10	220	Oak	Aluminum	6	B-22, C-28, D-30	.....
Outboard Launch	Hydro	297	15-0	4-5	325	Oak	Armclo metal	8	20-C, C-24, D-28	.....
Outboard Launch	Hydro	307	15-0	4-5	240	Oak	Aluminum	8	B-22, C-28, D-30	.....
Outboard Launch De Luxe	Hydro	307	15-0	4-5	350	Oak	Armclo metal	8	20-C, C-24, D-28	.....
Outboard De Luxe	Hydro	497	15-0	4-5	260	Oak	Aluminum	8	B-22, C-28, D-30	.....
<b>Non-Capsizable Boat Works, Brooklyn, N. Y.</b>										
Sea Gull NC	NC	375	9-0	4-6	92	Oak	Cedar	1	B-34	.....
Sea Gull NC	NC	373	11-0	4-10	125	Oak	Cedar	1	D-40	.....
Sea Gull NC	Runabout	400	14-0	5-0	165	Oak	Cedar	2	.....	.....
Sea Gull NC	Runabout	500	14-0	5-0	225	Oak	Cedar	4	.....	CWFL
<b>Old Town Canoe Co., Old Town, Maine</b>										
.....	Square stern	100	16	3-4	145	.....	.....	..	.....	.....
.....	Square stern with spinnakers	120	16	3-11	180	.....	.....	..	.....	.....
.....	Baby Buzz	170	16	310	180	.....	.....	..	.....	.....
.....	Sea Model	160	16	3-10	180	.....	.....	..	.....	.....
.....	Stepplane	150	14	3-10	125	.....	.....	..	.....	.....
<b>Pate Parkes Mfg. Co., Nashville, Tenn.</b>										
Step-Sled	Pilot	210	11-1	3-11½	90	Mahogany	Mahogany	2	C-37	.....
Standard	Step-sled	223	12-4	4-0	140	Mahogany	Mahogany	2	C-30	.....
Red Head	Step-sled	250	13-0	3-11	80	Mahogany	Mahogany	2	C-27	.....
Master	Step-sled	320	14-10	4-9	200	Mahogany	Mahogany	6	.....	.....
<b>Penn Yan Boat Co., Penn Yan, N. Y.</b>										
Playmate	.....	177	15-0	4-2	185	.....	Composite	5	B-22	.....
Coquette	.....	150	16-0	4-2	175	.....	Composite	7	A18, B-14	.....
Row-Outboard	.....	104	14-0	3-7	105	.....	Composite	5	A18, B-14	.....
Super-Buzz	.....	225	16-0	4-4	245	.....	Composite	7	C-26	.....
De Luxe Buzz	.....	384	16-0	4-4	310	.....	Composite	7	C-26, D-28	.....
Aristocrat	.....	...	16-0	5-0	525	.....	Composite	5	D-26	.....
Wasp	.....	...	12-0	4-2	110	.....	Composite	1	A-25, B-30, C-35, D-40	.....
Stepper	.....	...	11-0	4-6	130	.....	Composite	1	B-28, C-34, D-39	.....
Marathoner	.....	...	14-0	4-8	150	.....	Composite	2	C-33, D-38	.....
<b>Pigeon Hollow Spar, East Boston, Mass.</b>										
Three Star Family	Family	500	16-0	5-2	300	Oak	Cedar	8	.....	CELW
Three Star Family racer	Family racer	350	14-0	4-0	180	Oak	Cedar	5	.....	CELW
Three Star Racing	Racing	300	13-9	4-4	135	Oak	Cedar	3	.....	.....
<b>Rochester Boat Works, Rochester, N. Y.</b>										
Rochester	Cruiser	...	20-9	6-8	...	Oak	Cedar	..	.....	.....
<b>Sea Sled Corp., West Mystic, Conn.</b>										
13 Runabout	Runabout	229	13-0	4-2	240	Oak	Mahogany	6	B-20, C-28, D-34	.....
16 2 cockpit runabout	2 cockpit runabout	495	15-9	4-7	350	Oak	Mahogany	4	C-25, D-30	.....
18	.....	750	19-9	5-0	575	Oak	Mahogany	6	D-28	.....
<b>St. Louis Meramec Canoe Co., Valley Park, Mo.</b>										
Jollyacht Family	Family	550	16-0	4-5	260	Spruce	Mahogany	6	B-10, D-25	L
Roamer Family	Family	200	16-0	4-5	250	Spruce	Cypress	6	B-10, D-32	.....
Darb Step-runabout	Step-runabout	265	14-0	4-0	200	Spruce	Cypress	4	B-10, D-35	X
Beecee Racer	Racer	195	10-0	3-9	100	Spruce	Cypress	1	A-25, D-40	.....
Hunter Hunting	Hunting	135	12-0	3-7	100	Cedar	Canvas	4	A-8, B-16	.....
Speedster Family	Family	155	18-0	3-7	150	Cedar	Canvas	4	A-8, B-16	.....
<b>Stevens Tank &amp; Tower Co., Auburn, Me.</b>										
Racer	...	...	...	...	...	...	...	..	.....	.....
Family	...	...	...	...	...	...	...	..	.....	.....
Red Streak	...	...	...	...	...	...	...	..	.....	.....
<b>Thompson Bros., Peshtigo, Wisc.</b>										
Fish B Utility	Utility	106	14-0	4-0	180	Oak	Cedar	7	.....	.....
Fish B Utility	Utility	120	16-0	4-2	195	Oak	Cedar	9	.....	.....
Rambler Family	Family	124	14-0	4-0	190	Oak	Cedar	6	.....	.....
Rambler Family	Family	138	16-0	4-2	210	Oak	Cedar	9	.....	.....
Rambler Family	Family	178	18-0	4-6	300	Oak	Cedar	11	.....	.....
Elite Family	Family	154	14-0	4-0	190	Oak	Cedar, mahog.	6	.....	.....
Elite Family	Family	167	16-0	4-2	210	Oak	Cedar, mahog.	9	.....	.....
Elite Family	Family	212	18-0	4-6	300	Oak	Cedar, mahog.	11	.....	.....
De Luxe Family	Family	300	16-0	4-6	275	Mahogany	Mahogany	6	.....	.....
Baby Thom Racer	Racer	130	10-6	3-10	80	Cedar	Spruce	1	.....	.....
Baby Thom Racer	Racer	150	10-6	3-10	105	Mahogany	Spruce	1	.....	.....
Giant Thom Racer	Racer	190	14-0	5-0	150	Cedar	Spruce	4	.....	.....
Giant Thom Racer	Racer	220	14-0	5-0	175	Mahogany	Spruce	4	.....	.....
Slippery Thom Racer	Racer	160	13-6	4-6	90	Cedar	Canvas	2	.....	.....
Big Thom Racer	Racer	160	12-6	4-6	130	Spruce	Cedar	2	.....	.....
Big Thom Racer	Racer	184	12-6	4-6	145	Spruce	Mahogany	2	.....	.....

Key to Equipment Symbols: C—Cushions; E—Fire Extinguisher; F—Flag pole; H—Boat hook; J—Life jackets; L—Running light; P—Pump; W—Whistle; X—Paddle.

# THE OUTBOARDS GROW FASTER

New Boats for this Season Show Remarkable Trend Towards Family Craft of the Runabout Type with Greater Speed and Comfort



Eddie Wild West in his fast Baby Whale with which he has won many races



The 1929 Aristocrat runabout as made by the Penn Yan Boat Company



One of the fast little Cute Craft racing boats which have proven themselves in many hard fought contests



Big Bertha, a new Hooton Vee-plane which is a most seaworthy and able boat



A roomy runabout for outboard engines is the one made by the American Steel Boat Company of Boston, Mass.

**A**CROSS sectional view of the outboard motor boat industry today reveals many startling and interesting developments. Boat speeds which a year or two ago were considered unattainable even in competition using specially built craft, are now regarded as commonplace in standardized hulls equipped with stock motors. Radical improvements in hull design, the introduction of new ideas in connection with shaping of underwater bodies and stream lining of all parts, and the development of more efficient and extremely powerful motors, have been factors largely responsible for the attainment of these increased speeds.

Family type boats have been developed which not only deliver a good turn of speed, but also supply drivers and passengers with a degree of comfort previously looked for only in the larger craft powered with inboard engines. Cruising hulls have been designed which enable several persons to make extended trips in these small boats with ample comfort for all aboard. At the same time, they are able to reach out-of-the-way places, inaccessible to the regular cruiser of heavier draft. The seaworthiness of these boats and the reliability of their engines have enabled owners to traverse long stretches of open water with assurance of safety and little discomfort.

The offering of many features such as those outlined above has stimulated tremendous interest in the outboard industry among the boating public, so that the past year has witnessed tremendous strides in its progress. Modern methods of quantity production, such as are used in other manufacturing plants today, are being applied and the use of electrical machinery to replace many types of hand labor is increasing the productivity of skilled workmen and supplying the purchaser with a better product at lower cost. The application of automobile manufacturing methods has enabled builders of pressed steel boats to greatly simplify their production problems, while improving their product at the same time.

Illustrative of this type of improved construction are the methods employed by the American Steel Boat Corporation, manufacturers of Steelcraft. Steelcraft are built on a patented design and construction which makes it practical to build them of steel. Due to its arch construction, it is possible to build Steelcraft without any frames, thus allowing all of the weight to be put into the shell of the boat where it is most needed and giving it many times the strength of a wooden boat.

These boats are electrically welded throughout, making them of one piece and thereby doing away with any possibility of leaking. Through this new patented construction, steel has found its place in the small boat building industry as it did many years ago in large ship construction.

Steel craft offer a combination of speed, safety and durability found in few outboard boats. They are capable of a speed of 35 m. p. h. with

Class C motors, and will maintain a speed of over 30 m. p. h. with a load of four passengers. This is made possible through the patented design which gives them superior planing qualities.

Steelcraft excel in safety, as they are non-sinkable, due to the five foot air tank which is built into them and which is capable of sustaining the weight of passengers and engine in case of accident. They are non-capsizable because of the double concave bottom which forms a vacuum between boat and water, holding them in place and acting as a stabilizer. The chines, which in reality give the boat three keels, also render any attempt at rolling impossible.

The Steelcraft Family Outboard model is 12 feet in length, 54-inch beam and is made of 18-gauge rust resisting Toncan metal, electrically welded, with bottom in one piece. It carries five passengers or approximately 900 pounds. Equipment regularly supplied includes floor boards, seats, Kapoc pads and pillows and one paddle. The purchaser has a choice of red, yellow, or black paint for the hull and this finish consists of eight coats of paint and varnish, with any name put on at no extra cost.

The Faybow Middy, produced by the Fay and Bowen Engine Company of Geneva, N. Y., is a boat of the runabout type with very pleasing lines and excellent construction. It is a 16-footer, 52 inch beam and 5 inch draft. With a suitable motor, it maintains a speed of 27 miles an hour and at the higher speeds is remarkably dry even in rough seas. A new model is to be offered, 6 inches shorter than the Middy and 4 inches wider. This craft will be capable of higher speeds than the Middy and will be sold rather as a racer than a runabout.

Some new boats which are sure to receive favorable attention are the latest outboards of the Boyd-Martin Boat Company of Delphi, Indiana. Among these may be mentioned the Commodore, Mercury, 16-foot Barbara, the Bullet and the Senior. They have all been newly designed to render the most satisfactory performance with the powerful and fast new 1929 motors. Construction is of genuine African mahogany, which makes a very beautiful job.

Through the adoption of many new features, one of which is 100 per cent. exclusive and others of which are out of the ordinary in the outboard field, a new outboard built by the boat division of the Dwight Lumber Company, Detroit, Michigan, is achieving a high degree of popularity in the boating field.

Of mahogany construction, the new Dee Wite Outboard is a boat of unusual quality and beauty of finish. It was designed by a prominent Detroit naval architect who has been the designer of a number of well known craft. The bottom is of double planked construction, a feature which, so far as is known, is exclusive in the outboard field.

Many other features combine to add further interest. Included among these are an overall length of 16 feet, a beam of 54 inches, a 24-inch freeboard, a knife-edge prow that makes for clean entrance into the water, double cockpits with upholstered seat cushions and backs, seating capacity of six with ample storage space, windshield, heavy oak keel, and last but not least,



The Ludington Aircraft Hydroplane which has done 35 miles per hour



A 15 foot Mullins Steel outboard runabout which is seaworthy and fast



The Isle La Plume Silver Streak racing hydroplane has a special form of bottom construction



The 16 foot Acme runabout is able to do up to 30 miles per hour with several passengers and a Class D engine



The 11½ foot Brooks B Stepper is suitable for Class B and C outboard engines



The Torpedo model outboard speedster as made by the Pigeon Hollow Spar Company of East Boston



The 14 foot Bossert Pirate is a well built craft with stability and speed



The Herbst Viking family runabout which approaches the comfort of the inboard engined boats



The Fay and Bower Middy runabout banks gracefully when rounding a turn at full speed



One of the four new Boyd Martin outboard boats, the Imperial Hydro-runabout



The Alloy Boat Corporation of Buffalo have brought out several new hulls. This one is the Slipabout



The Dee Wite 16 foot runabout features comfortable cockpits and a shelter over the engine



The Lyman 13 foot clinker built outboard is of an improved design making it very fast

complete equipment is supplied with the boat.

In reality, this new Dee Wite is more of a runabout than outboard, insofar as appearance and seaworthiness are concerned. Its unusually high freeboard, coupled with its knife-edge flare forward, insure a dry comfortable, family type boat suited to general service requirements, rather than speed and thrills alone.

Despite that fact, however, speed has not been sacrificed. It is possible to get speeds up to 35 miles an hour, depending upon motor equipment. The boat is designed to permit the use of any of the standard outboard motors.

A unique feature is found in the fact that the motor, instead of being mounted on the stem of the boat, outboard fashion, is mounted inboard and is entirely concealed from view. In addition to protecting the motor from spray, this new method of mounting places the motor beneath a hatch, as in the runabout type of boat, thereby greatly improving the streamline appearance of the hull.

Regular equipment includes lifting rings which permit the boat to be raised and lowered on davits, and this feature in connection with the staunch seaworthy qualities of the boat, makes it well suited to serve as a yacht tender or owner's boat.

Two boats which have attracted much attention during the past year are the Laconia Speedster and Sportster models, built in Laconia, New Hampshire by the Laconia Car Company. These two boats are 12 feet four inches and 15 feet 11 inches long respectively and are designed to meet the demand for two different types of boats.

The Speedster, a hydroplane model, is to boats what the speedster runabout is to motor cars. It may be used with either the class B or C motors, is easily handled, and shows speeds well in excess of 30 miles per hour. Considering that it is a comparatively heavy, staunchly built, completely equipped craft, its performance is remarkable. It is operated from the after cockpit, with an upholstered forward cockpit for passengers.

The Sportster, a large, two-cockpit runabout, presents a maximum of elegance, speed, usability, safety and comfort beyond anything that has yet been seen in the field of outboard water motoring. This model may be driven from either forward or after cockpit. Forward there is the comfortable cross seat, for three if necessary, upholstered on bottom and back, and nestled below the windshield. The steering wheel falls at a comfortable angle and on the dash within easy reach are the two switches, one for the electric lights and the other for the motor ignition cut-out as a safety precaution. When constant maneuvering at speed is desired, the boat is operated from the after cockpit, where the driver sits in a comfortable cross seat upholstered on back and bottom with the motor and all its controls within arm's reach. The Sportster may be used with several classes of motor, according to the speed desired. The classes B, C, and D and larger are all efficiently applied to this model. Class C is generally used, however, and this combination gives better than 25 m. p. h. This model is particularly adapted to the largest series of motors and may be thus used with perfect safety and will readily yield an

## THE OUTBOARDS GROW FASTER

amazing speed and performance. Both Speedster and Sportster are handsome in appearance. Of mahogany, from their Monet Metal cutwater to their highly finished transom, every article of equipment (mostly in white nickel brass) has been selected and designed to the graceful lines of the craft. This equipment is complete in all details, everything required by law or necessary for comfort being supplied.

In addition to these two models, the Laconia Company is bringing out an entirely new craft, to be known as the Laconia Special. This boat has been designed and developed for the largest and most powerful outboard motors, with unequalled beauty, refinement and completeness of equipment and with luxuriosness and comfort to a degree not previously approached in outboard craft.

In beauty of line and finish, and in the detail of its appointments the Special is comparable only to the expensive inboard runabout. In both forward and after cockpits the floor boards are covered with rich, dark linoleum, giving a luxurious appearance and preventing small articles from falling between the floor boards, and eliminating the possibility of injury to ladies wearing high heeled shoes.

Sides of both cockpits are finished in mahogany giving an added tone of luxury and additional utility through the provision of storage space for tools, wiping cloths and other small articles between the paneling and the side of the boat. Both forward and after seats are upholstered with rich, soft cushions of life preserver type. Cockpits are particularly roomy, accommodating five people with the utmost comfort.

The Laconia Special is designed and constructed for minimum weight, but with maximum strength at essential points, giving long life and low maintenance expense. All this refinement of detail indicates the care with which the Laconia Special has been engineered. It is strongly constructed of the finest materials and designed to withstand the severe strains imposed by the highest powered outboard motors driving the boat at express speed. At speeds even in excess of thirty-five miles per hour the Special is a safe, easy riding, seaworthy craft. The equipment includes everything required for safe and comfortable operation of any boat.



*The new sedan runabout built by Airships, Inc., is an attractive job*

An entirely new outboard attraction which is certain to arouse a great deal of interest is the sedan runabout built by Airships, Inc. This sedan runabout hull is constructed of mahogany and embodies the most improved and advanced ideas used in the manufacturing of airplane pontoons. It has a beam of 55 inches and a freeboard of 21 inches which assures the owner of a real dry and seaworthy boat. The sedan top is rakish in lines, being completely upholstered on the interior which absorbs much noise and motor vibration, making this cabin a very comfortable affair. There are seating arrangements inside the cabin for five grown persons including the driver who operates the steering and power controls directly from a 14-inch steering wheel. On each side of the cabin there are sliding glass windows which, when opened, allow sufficient ventilation, in addition to that which is admitted through the combination bow light and ventilator on the forward deck. This proper ventilation prevents all dry-rot of hull interior and assures one of a constantly sweet boat without any possibility of bilge fumes. It is also impossible for oil and gas to find entrance into the bilge as there is a drip pan in the aft deck under the motor which carries all drippings through the transom and overboard. There is also a dome light in the ceiling of the sedan which permits convenient night cruising, used especially when taking passengers on or off the boat. Entrance to the cabin is through a double hinged hatch cover from the aft cockpit. This sedan runabout makes an ideal small yacht tender as the arrangement permits the division of crew and guests between the two cockpits, can be easily raised on davits and is capable of a 40-mile per hour speed.

One of the many construction features is the usual use of the Airships feathered-seam construction in place of the old type batten-seam construction. This feather is a brass ribbon  $\frac{1}{2}$ -inch

wide fitted into the joining planks at the seams, allowing a crack of 1-16 inch, which takes care of any expansion in the wood caused by absorption of moisture. This consideration is very important as it guarantees not only a dry boat, but one which also keeps its true form.

An entirely new 17-foot vee bottom outboard runabout, and an improved 16-foot vee bottom outboard are among the 1929 offerings of the Dunphy Boat Manufacturing Company of Eau Claire, Wisconsin.

The 17-foot vee bottom runabout is one of the most craftsman-like jobs that has been seen for a long time, and brings to the outboard enthusiast a boat that he can be proud of in any company. With her 56-inch beam, she has plenty of room for six people, and their comfort is assured through the use of nicely upholstered seats and back rests.

The hull is designed primarily for use with the larger outboard motors, with which she will deliver from 26 to 30 miles per hour. Even with a lighter motor, she rides well and makes good speeds.

The boat is all mahogany, brass and copper fastened, and is fully equipped with running lights, steering wheel and special deck trimmings.

Dunphy is continuing the 16-foot vee bottom outboard runabout which proved so popular last season. Combining seaworthiness with high speed, this boat has won many friends. With one of the big husky outboards of 16 or 18 h. p., she'll turn up as much as 34 miles per hour, and even with a 6 h. p. motor, better than 20 m. p. h. can be expected. Four passengers can be carried without a bit of overloading. This model is available with mahogany planking, decks, and frames, or with cedar planking and mahogany trim.

In keeping with the increased demand for quality and sturdiness in outboard powered boats, it is of interest that the line of the Acme Boat Company of Miamisburg, Ohio, for 1929 will include five fast sturdy hulls.

For the racing enthusiast the new Acme Wasp will give his heart's desire in speed, seaworthiness and maneuverability. The Wasp is an ultra modern one man racing craft of single step design. The length is approximately 11 feet overall with a beam of 48 inches. The bottom is called a triple vee bottom and is so designed that when the boat is in planing position only 36 inches or less is touching the water, which naturally cuts down resistance thereby giving greater speed. Both chines being off set, the Wasp has sterling seaworthy qualities and will allow the operator to turn at full speed, the boat banking inward of its own accord. All the advantages of side stabilizers are fully realized. None of the usual disadvantages will be found. The first Wasp test models were built a year ago and were very successful and fast, winning every race in which they were entered. The new Wasp is the culmination of this wide experience and will work to best advantage when powered with motors of classes B, C, and D. Construction is of the rigid seam batt type, brass screws and copper nails being used for fastenings. It is built in two models; cedar planking or mahogany planking over spruce frames. Both models are fully decked over driver's cockpit. Equipment includes full steering wheel control, paddle and fin.

Those fans not primarily interested in racing, but who want speed, safety and comfort combined, will get just that in the new Acme runabout. This hull is entirely new in the Acme line and will make friends this season. It is a big, husky craft 16 feet long by 54-inch beam, built with vee bottom and combining strength, seaworthiness and safety together with a very satisfactory speed of 25 to 30 m. p. h. with the motors of C and D class. It has been the aim of the builders to produce a real runabout type of hull; one that looks the part and also handles in all kinds of rough water like a boat of twice its size.

The details have been worked out to a fine degree. The forward part of the hull has ample freeboard with a beautiful concave flare, while aft the sides blend into a well rounded tumble home, giving the appearance of a regular 26-footer. The deck is properly crowned and fitted with slanting cowl while the coaming continues from cowl to transom. In it will be found two comfortable seats with back rests slanted for the comfort of the occupants. A motor drip pan is built in at the stern of the hull. It may be had in either cedar or mahogany planking over spruce frames. Fastenings are brass screws and bolts throughout, all planks being screwed to battens instead of being nail clinched, quality being the keynote of the manufacturer. Standard equipment includes bronze deck hardware, running lights, flag pole, fire extinguisher and paddle.

The Acme line is completed by the addition this year of a fully equipped outboard cruiser. Like the Viking runabout the cruiser is very sturdily built to stand rough going and to give the owner many years of pleasure on the water.

## THE OUTBOARDS GROW FASTER

An extremely popular type of outboard boat is that produced by the Penn Yan Boat Company of Penn Yan, New York. They offer a very complete line, comprising improved boats of their standard models, as well as several new boats recently developed.

The new racing hulls offer unusual improvements in design, as well as the famous Penn Yan composite construction which insures a permanently light and fast boat. Among the boats intended primarily for racing is the Wasp, a boat of extreme type, weighing only 110 pounds and built for B, C and D motors. The Wasp is 12 feet long and 52 inches overall width. Ceestepper, another of the fast Penn Yan hydrods, a rough water racing boat, turns out 39 1/4 m. p. h. with a class D motor, and is suited to class C, D and E. motors. The hull is 14 feet long and 54 inches overall width. Marathoner is a long distance racing hull, weighing 155 pounds, with a length of 14 feet and a width of 54 inches overall. It is built for motors of highest speed and horsepower and is equipped with driving seat, steering gear, electric gasoline system, and forward cockpit for passenger. The 11-foot motor dinghy for B and C class motors is another serviceable little craft. This unusual boat turns out 25 miles per hour with a class B engine. It has a length of 11 feet with a beam of 52 inches and a depth of 20 inches.

Although the Fairchild line for 1929 has only just been announced, Fairchild Boats already are making shipments to foreign countries. Export customers agreed that they had been impressed by the performances of the 1928 boats and had only waited until the 1929 line was ready before placing orders.

Already one of the Fairchild plants is working their men overtime to keep up with the demand but customers need have no fear of delayed deliveries owing to the fact that several other plants are all toolled up ready to go into intensive production just as soon as the demand makes such a step necessary.

It is planned to open the second plant immediately following the close of the Motor Boat Show in order to fill early orders from dealers located in foreign countries and in the southern part of the United States.

A rather remarkable phase of this early business is the fact that many of the orders were placed directly from blueprints by men who had never seen a Fairchild boat. This is probably due to the recognized position of leadership of the Fairchild staff of engineers which includes both expert airplane designers as well as an experienced naval architect in the chief engineer, Gerald T. White, the well-known small racing boat designer.

According to C. T. Ludington, who designed this boat with the help of Jacob Dunnell, there is a demand for two distinct types of racing boat. First, a boat which can go out in rough water and ride them wild. Second, a boat which can compete with the various egg-shell craft on smooth water. The Ludington Hydro and Ludington Lightning will make a racing team adaptable to any water conditions.

Mr. Ludington tells us that the Lightning has rather surprised its makers by its ability to make short turns and ride the rough water almost as well as its big brother, the Hydro.

The second Ludington development is the Ludington Buccaneer, a sixteen foot Vee bottom runabout with seating capacity for seven people. This boat is strongly constructed of Philippine mahogany planking over spruce frames and is adaptable to any outboard motor on the market from Class C up.

A speed of 25 miles per hour with a Class C motor and two passengers is readily attained in this new runabout. It is predicted that this boat will do between 35 and 40 miles per hour with motors of higher piston displacement.

Ludington Aircraft, Inc. has developed this boat to meet the need for a fast, comfortable, family boat at a reasonable price.

A boat which has succeeded in establishing for itself an enviable record in the way of winning a large percentage of the races in which it is entered, is the Cute Craft, built in Fall River, Massachusetts, by Cute Craft, Inc. Anticipating the introduction of new motor designs for 1929, they have added to their line the Meteor model to accommodate the larger and faster motors expected. The Meteor is a 12-footer, and the embodiment of new lines in its design has resulted in a hull that is extremely fast and stable, and one which should prove highly satisfactory for racing the more powerful motors.

The Cute Craft Sea Horse, a family runabout has also undergone some changes of line. A new bottom design has greatly increased its speed and stability, and the addition of equipment has made for a most practical pleasure craft.

The Mullins Manufacturing Corporation of Salem, Ohio, is another of the outboard builders specializing in the production of steel boats. They are bringing out a new fifteen foot boat known as the Steel King. Another boat, identical with the Steel King, except in its more elaborate appointments and more

complete equipment, is known as the Steel King de Luxe. In addition to these two new models, they propose to continue for 1929 the 16-foot Sea Hawk Standard and 16-foot Sportsman with new improvements which will consist of ribs on 6 inch centers, instead of 12-inch and triple keel construction, the same as in the new 15-footer. This stronger construction will enable the Sea Hawk to carry either class C or D motors and to stand up under the strain of the largest motors. Both the Steel King and Sea Hawk models are supplied in either Armco metal or aluminum hulls.

Another manufacturer who builds an unusually fast craft is Gordon B. Hooton of Grand Rapids, Michigan. Two Hooton boats of last year, the model R and the Safety Plane, proved so eminently satisfactory that they will be manufactured this year with practically no changes. They are both of the step variety. In addition to these, two more new boats will be offered this year. One of these is the 11 1/2 foot stepper known as the Wild Cat which succeeded in winning the Free for All event in the last Harmsworth Regatta. This boat belongs in the C and D classes. The other new model is a runabout of rather revolutionary design known as the Vee-Plane.



A Ludington Lightning runabout trying its speed against a Ludington hydroplane

Louis Bossert & Sons, Inc. of Brooklyn, N. Y., make it possible for the amateur who prefers to build his own boat to obtain a very satisfactory job by purchasing the boat in knock down form and doing the assembling himself. Their Pirate Kid model is intended for this sort of construction although it can also be bought in the completed form. It is exceptionally well designed and is adaptable for class B and C motors. The other member of their line is the Bossert Pirate Junior, a hand-some fourteen foot family runabout.

The Herbst Boat Works, Inc. of Wilmington, N. C., has developed its product to a point where their boats are known to consistently come through as winners in a large percentage of the races which they enter. Three models are included in the line—the Junior A, a 9 foot boat of 44 inch beam; and the Special B, 10-foot 6 inch length and 44 inch beam; and the Special C, 10 feet 6 inches in length and 47 inch beam. One of the salient features built into these boats is the Aeroboard Rubber Bottom.

The Pigeon Hollow Spar Company of East Boston, Mass., are offering an able little craft of rather unique design, known as the Three Star. Their Ensign is a ruggedly built family boat intended for offshore work under the hardest conditions.

The Sportsman model has been developed by this company to supply the need for a boat adapted to cruising, hunting and fishing as well as racing. Like the Ensign, it is very difficult to upset and is decidedly able in rough water. With its rigid construction, it will stand up to hard driving over a long period of years.

The Torpedo is a new 13-foot racing type, which will carry three people and is not limited to smooth water. In keeping with the rest of the Three Star line, it is strongly built, so that it cannot be classed by any means as a single season boat. At the same time it is able to show a fine turn of speed.

The Alloy Boat Company of Buffalo, New York, is another exponent of the use of metal in the construction of their outboard hulls. The special alloy which they employ is an especially tough and light material insuring long life for the boat as well as high speeds in racing. The light-weight feature holds good for the entire life of the boat, inasmuch as the metal cannot absorb water. It is proof, at the same time, against warping. Seven models are included in their line, each of which has its particular uses. The Sport Slipper is a modified vee bottom type 14-feet 3 inches long, reinforced with spruce ribs and ash stringers. It provides ample room for six passengers and is completely equipped for use. The Slipabout is an 11-foot 10 inch hull, also of modified vee design and the specifications are much the same as in the Sport Slipper. Four persons

## THE OUTBOARDS GROW FASTER

can be comfortably carried in this model. The Super Slipper is slightly better than 11-feet in length and is of the single step hydro design. A folding fin is built into this craft and is one of the many features contributing to its fine performance. The Standard Slipper is an 11-foot single step hydro, capable of very high speeds. The Midget Slipper retains the good qualities of the larger boats of the series, but is only eight feet long. Aluminum is used for hull and decks with ash and cypress for reinforcement. The Slipper dink is available in two sizes, 10 feet 6 inches and 8 feet, and in either size is a handsome little boat, finished in black or white lacquer or natural finish. The 8-foot Slipper skiff completes the line and supplies the need for a practical little boat that can be left on the beach in all weathers without fear of warping, shrinking, or cracking.

In the building of a substantial and beautiful line of outboards known as Step-Sleds, the Pate-Parkes Manufacturing Company, Inc., of Nashville, Tennessee, have held the safety and comfort of passengers uppermost in mind, without the sacrifice of other desirable qualities. Four models built, two of which might be classified as standardized jobs and the other two as custom built. Each of these types include a model especially suited to racing as well as another intended more for general utility, such as runabout and pleasure service.

Wisconsin is well represented among the builders of outboards. The Isle La Plume Boat Works of LaGrosse produce a series of fine boats known as the Silver Streak. They represent the last word in outboard craft and have deservedly proved very popular. The list of models includes a 16-foot vee bottom stepless runabout, a 14-foot vee bottom step hydro, an 18-foot vee bottom stepless racer, a 13-foot step racer and a 20-foot vee displacement cruiser.

D. N. Kelley & Son of Fairhaven, Mass., have developed a clean cut little outboard called the Baby Whale. Proof of the correctness of design of three speedy little Whales is found in the numerous races won by them in all parts of the country. When the long experience of the Kelley organization and the excellent facilities of its extensive plant are taken into consideration, there is little cause for wonder that their boat excels both in construction and in performance. The record of their winnings is a long one and leaves no doubt as to their superiority.

In the runabout class of outboards, the Chase-Emerson Corp. of Norwalk, Ohio, has evolved a craft that established new standards of beauty, safety and smartness. It would be difficult indeed to produce an outboard powered boat that would resemble the big expensive inboard runabouts more closely. Equipment is unusually complete and construction is a combination of Philippine and Honduras mahogany and mahogany plywood. The paint job is in harmonious three color combinations of water proof finish and this, together with the luxury of its appointments, make it as handsome and comfortable as a fine motor car. In addition to the runabout, this company builds a Knockabout of the same dimensions but the finish and equipment are such as to make it more suitable for general utility. A very vital element in the elimination of vibration in both of these models is the scheme of running double longitudinal keels for three quarters of the length of the hull, effectively tying up transom, frames, and planking, and reducing the strains of motor vibration on the hull to an absolute minimum.

The Rochester Boat Corporation of Rochester, New York, has succeeded in satisfying a long felt need for a small outboard cruiser which will actually provide comfort and sufficient accommodations for a few people on a more or less extended cruise. With a length of 20 feet 9 inches and a beam of 6 feet 8 inches they have been able to build into this trim little craft all of the features which the purchaser of a cruiser expects to find. The

general design is of the conventional sort with a raised deck forward extending half the length of the boat. Aft is a cockpit adequately sheltered by a canopy and windshield. A clever arrangement of the after deck house encloses the motor and keeps it out of sight where it will not detract from the cruiser's fine appearance. Besides two berths in the cabin and a cushioned seat in the cockpit aft, appointments include a toilet, galley, clothes locker and ice boxes as well as the various essential running equipment. All in all, it is quite remarkable how such complete accommodations can be secured in so small a ship.

Among the manufacturers of outboard hydroplanes, the G. Engine and Boat Company of Norfolk, Virginia, produces a craft of remarkable speed. Their Curtis DeLuxe hydroplane is a sturdy 13-footer, rated at speeds of 35-41 m.p.h. with a class C motor. It is built of mahogany throughout, brass fastened and although it is capable of the higher speeds which adapt it to racing, yet it is rugged enough to make it suitable for all around use.

The outstanding element in the boat developed by the Stevens Tank and Tower Company of Auburn, Maine, is speed. This applies not only to their racing model but to the family and general purpose boats as well. The racing boat for example has developed over 38 miles an hour. The family boat showed 30 miles and the Red Streak made 32. Speeds as high as these should certainly satisfy the most exacting.

The St. Louis Meramec Canoe Company of Valley Park, Mo., is the builder of a very attractive line of outboard craft, both wood and canvas covered. Six different types supply a model for every requirement.

Bruno Beckhard, of Flushing, N. Y., is featuring a rough water runabout designed especially in view of the fact that some summer homes must keep their boats running regardless of weather. An unusual seating arrangement makes comfortable provision for five passengers with a clear aisle down the center of the boat. Beckhard is also showing the Lyman, Curtis and Kidney lines, including two tenders and four runabouts ranging from the high speed to the utility type.

Of decidedly different design from all other outboards is the Sea Sled, manufactured by the Sea Sled Company of West Mystic, Connecticut. Like the larger inboard-powered craft of the same name, these little outboards are square-bowed with an inverted vee-bottom. At speed, this bottom provides a cushion of air on which the boat rides, lessening the shocks as the craft hits waves and at the same time drawing spray beneath the boat. Results obtained in actual experience proves the efficiency of these little boats and show their ability in rough water.

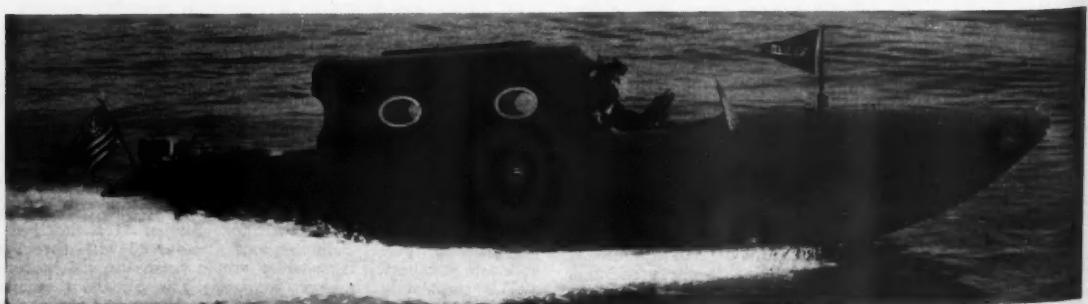
The Cape Cod Shipbuilding Corporation located at Wareham, Mass., builds three models intended primarily for outboard motors.

The Brooks Boat Company, Inc., of Saginaw, Michigan, offers four different models for outboards, any of which may be bought in the knock-down form and built by the amateur.

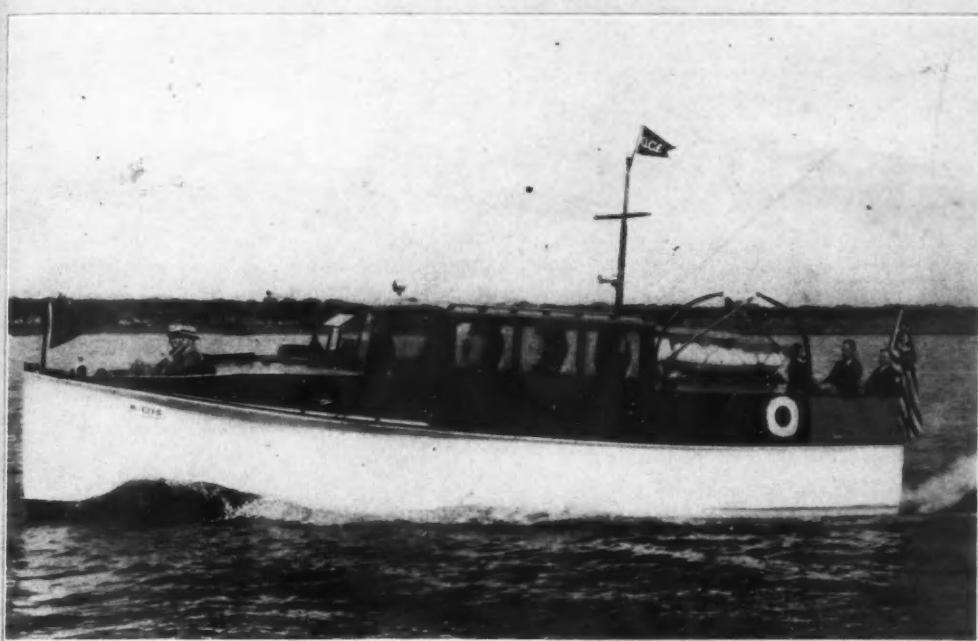
The Zipabout is a speedy little 10½ foot outboard developed by the B-D Boat Company of Fall River, Mass. She is a beautiful little all mahogany craft, equally as well suited to pleasure use as to racing.

For those who are interested primarily in sea-going qualities in a boat, the Chesapeake Boat Company, Inc., of Chesapeake City, Md., offer a 20-foot sea skiff. This is a craft that delights in rough going and makes nothing of it.

Some of the other manufacturers offering various types of hulls adapted to the use of the modern outboard motors are Park's Boat and Engine Works, Belhaven, N. C., the Hemming Larsen Boat Works of Marinette, Wisconsin, Thompson Bros. Boat Mfg. Co. of Peshtigo, Wisconsin, and the Lyman Boat Works of Sandusky, Ohio.



*The outboard cruising runabout of the Sea Sled Corporation, twenty feet long, will carry four persons and sleep two.*



The 41-foot a. c. f. cruiser has many novel features. Note the forward cockpit, enclosed bridge and deck space aft

## STANDARDIZED BOATS WIN FAVOR

(Continued from page 62)

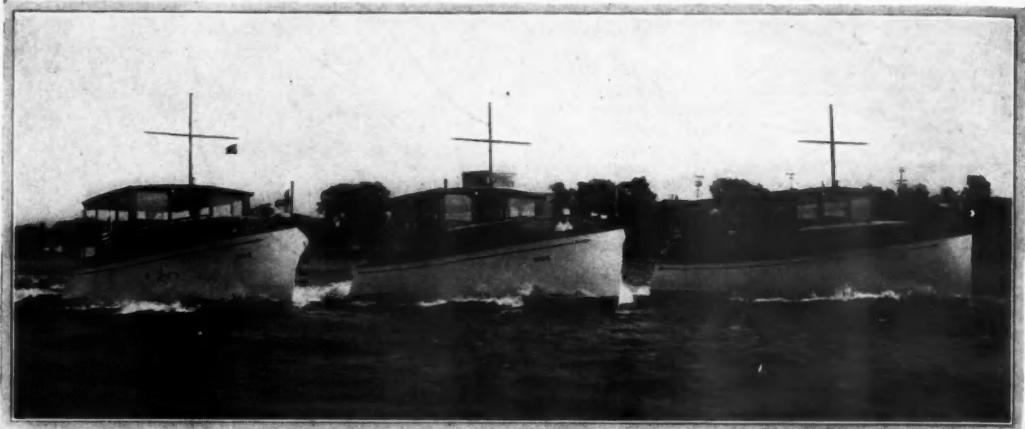
Another novel type is the new speed cruiser de luxe, called Newport by the Staples Johnson Company, its builder. This is a new type arranged with a cockpit forward and fitted with the automobile type drive and air cushioned seats. This makes driving a pleasure rather than a task and the clear unobstructed windshield permits of a wide outlook ahead. A compass is placed in front of the steering wheel and a chart table in the form of a drawer pulls out to the right of the operator. The operator's seat is large enough for a passenger also and is raised above the cockpit floor by a few steps. The cockpit which is arranged in the roomiest portion of the hull is furnished with easy chairs and enclosed with curtains on the side.

The cabin further aft is on the same floor level with the cockpit and has the well appointed galley, stove, sink and locker spaces usually found. The cabin proper with its Pullman folding berths concealed within the side paneling offers spacious living quarters by day and comfortable sleeping by night. Still another cockpit is in the extreme stern, this being furnished with chairs and the boarding ladder. The boat itself is 34 feet in length by 9 feet 6 inches in width and is to be powered with the new 200 h.p. Kermath engine which will drive her up to about 28 miles.

A type of boat which appeals to many boat users is the fast and seaworthy Sea Sled. The Sea Sled Corporation in addition to the outboard engined models which are most popular just now, have developed two new inboard models which are excellent performers

and smart appearing craft. The Model 22 provided with a 110 h.p. engine, is a flush deck, high crowned runabout designed to be a 30 miles per hour boat. This hull has delivered 27 miles when carrying a load of six persons over a carefully measured course. The next larger model, number 26, is to be powered with an engine of 200 h.p. and will be a forty mile per hour craft. It will in its main essentials be similar to the model 22 with the exception that it has two cockpits and can accommodate from eight to ten persons. With eight people on board she has shown a speed of 35.5 miles per hour which, by the way, are not mouth miles as they have been called, but actual speeds determined by a stop watch.

Motorcraft is the name of a deep water runabout conceived by W. J. H. Dyer and built in his plant at East Greenwich, Rhode Island. Mr. Dyer is a deep sea yachtsman of 25 years experience and has incorporated in his design many of the original features included by L. Francis Herreshoff when it was first prepared. Mr. Dyer makes some very ambitious claims for his boat and proceeds to prove them by a demonstration in the roughest water he can find. Off Point Judith, and in Block Island Sound, are his favorite proving grounds for this 21-foot runabout. On a recent test in late November, Mr. Dyer picked a particularly rough spot and put Motorcraft through her paces. The boat was driven wide open up to 35 miles per hour in a wintry sea without taking in water. The waves were crossed at every angle and every speed.



*A pretty marine parade of three new Richardson Cruisabouts, all 28 feet long and powered with a Gray Six-40 engine*

Small circles were made and the throttle suddenly cut down from full speed to nothing. All through this strenuous test no water came aboard and the boat behaved as well as if it had been maneuvered on a calm summer sea. The construction which makes these boats so rugged is very light and durable. The round bilge gives it its seaworthy ability, and a white oak keel and skeg provide the structural strength. The boat is built on a longitudinal stringer system without requiring the conventional form of ribs. The planking is double with the inside layer fastened diagonally from keel to clamp, and the outside running fore and aft in full lengths without butts. An eight cylinder Universal engine of 120 horse power gives the boat its maximum speed of 35 miles. While the boat weighs less than a ton, the construction is such that the hull will not weave, twist or groan under the most severe conditions.

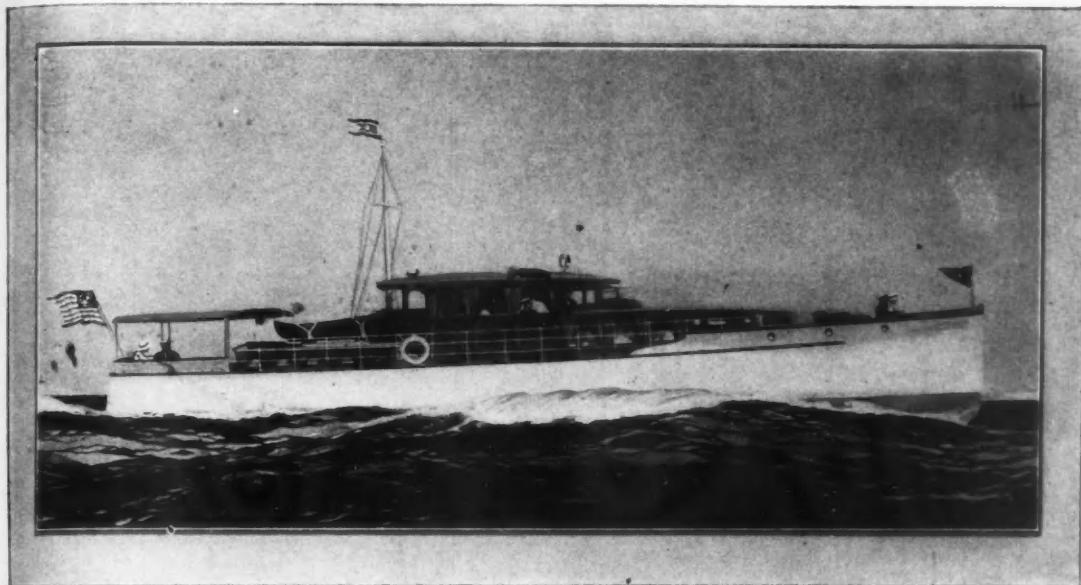
For many years the Consolidated Shipbuilding Corporation of Morris Heights, New York, have built the

boats of many sizes. They have brought out for this year a 50-foot cruiser which is one of their most successful types. While only 50 feet in length it has unusual accommodations, is smart looking and has many useful features. This boat is built entirely of mahogany with a fine rubbed finish. The power plant consists of one 170 h. p. Speedway engine which will give the boat a speed of 19 miles. The arrangement includes sleeping accommodations for six, a forward and after cockpit and a rather large deck house for this size of boat. All have been delightfully decorated with appointments here and there which evidences the good taste of the decorators.

The Robinson Marine Construction Company of Benton Harbor, Michigan, build a series of fast cruising runabouts 38, 39 and 42 feet in length. The Red Arrow day cruiser is the 38-foot boat and is to be powered with a choice of any of the new 150 h. p. engine sizes. The next larger boat is termed the Sea Gull sedan cruiser, vee bottom type of hull and powered



*Chenevert & Company of Detroit, builders of the Cruisader, have turned out an attractive boat with a large open cockpit forward and a large comfortable lounge seat in the stern*



*One of the new 72-foot Luders express cruisers with beautiful stream lined hull which will be seen in 1929*

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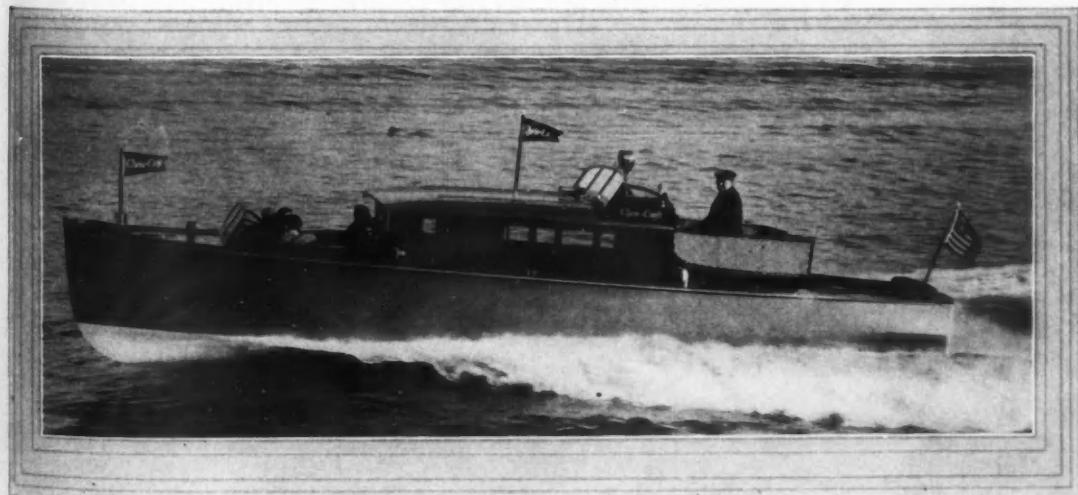
with a 200 h. p. Hall Scott engine. The speed of this boat is to be between 30 and 32 miles per hour. The largest of the fleet is the 42-foot twin screw commuter arranged with two Sterling Petrel engines of 200 h. p. each. This boat is designed for a 35-mile speed and is a well arranged, substantially constructed boat of the newest type.

A cruising yacht of large size is the 56-foot diesel engine cruiser built by the Townsend Boat Building and Engine Corporation in Philadelphia. This is a large, able vessel arranged with three separate staterooms and heavily constructed. It is to be powered with two Hill engines of 75 h.p. each which are located in the engine compartment under the bridge deck amidships.

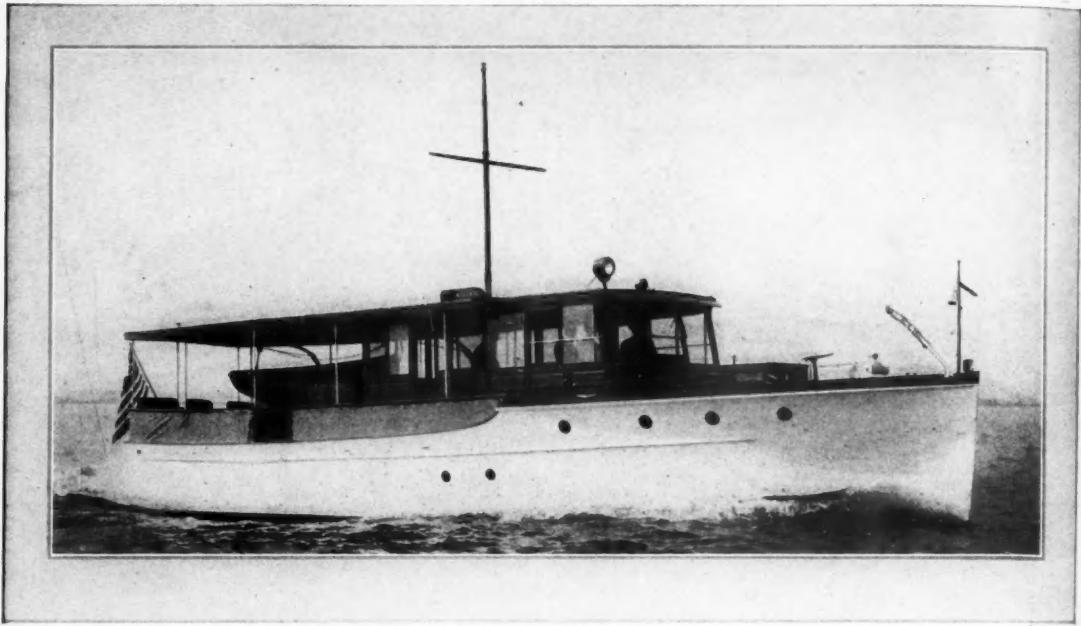
The A. G. Liggett & Son Company have been building a 35-foot cruising craft, one of their most popular being the double cabin cruiser with a large

enclosed bridge deck. This boat is arranged to accommodate the six-cylinder Kermath 125 h. p. engine and will provide for five passengers. A newer boat is called the 35-foot sport model which is intended to be a faster boat. It is arranged with a roomy cockpit forward and the usual upper and lower berths in the cabin. The galley is arranged just inside the cabin and contains the usual icebox, stove and lockers, while the engine itself is placed under the cockpit and is protected by a hatch. This boat, in order to provide greater speed expected, is to be powered with the 150 h.p. Kermath engine.

The Banfield Sea Skiff Works specialize in the construction of a 32-foot sea skiff cruiser of more than average speed. Their boats are all powered with engines of sufficient size to produce the required speeds. The recent models have been improved by the enlarging of the forward cockpit and refinements in the in-



*The new Chris Craft runabout cruiser which is decidedly fast and still has excellent cruising accommodations*



*The largest of the Elco fleet. The twin screw 50-foot yacht. Every comfort and luxury are supplied*

terior cabin arrangement. Berthing arrangements are provided for four persons and the galley is arranged on the port side in the usual manner. The cockpit is provided with a top with a removable after section so that the boat may be used for deep sea fishing for which it is well adapted.

The Matthews Company of Port Clinton, Ohio, are one of the firmest exponents of standardized construction. Their line of 38-foot cruisers is well known and production methods have made possible the use of a variety of cabin and interior arrangements on a standardized hull. More recently they have produced a sport model which is closely similar to their standard cruisers with the possible exception of the power plant and the absence of the full cabins as on the other boats. These boats are provided with a 150 h.p. Kermath engine and produce a smart, comfortable boat which is exceptionally fast for this amount of power. For the

real speed artist special installations can be made, up to and including the powerful 12-cylinder Liberty engine, and with this, speed is expected to be about 35 m.p.h. An abundance of locker space is provided and full equipment for extended cruising is carried. This boat has a large forward cockpit accessible from the inside of the boat which is large enough to accommodate four good-sized people. A windshield protects this from the weather. The large after cockpit has hatches over the engine compartment which are flush with the floor. There are no built up boxes over the engine which makes possible the use of ten or twelve large wicker chairs in this space.

The Albany Boat Corporation of Watervliet, N. Y., have prepared new designs for a fast sedan runabout which is to be 35 feet in length and arranged with an enclosure over the forward cockpit which leads to the open after cockpit through a passageway adjacent



*One of the 26-foot Dodge runabouts noted for speed and comfort*



M. Rosenfeld

Sea Sled model 26, the largest and fastest, has a 200 h.p. Kermath and capable of almost 36 real miles



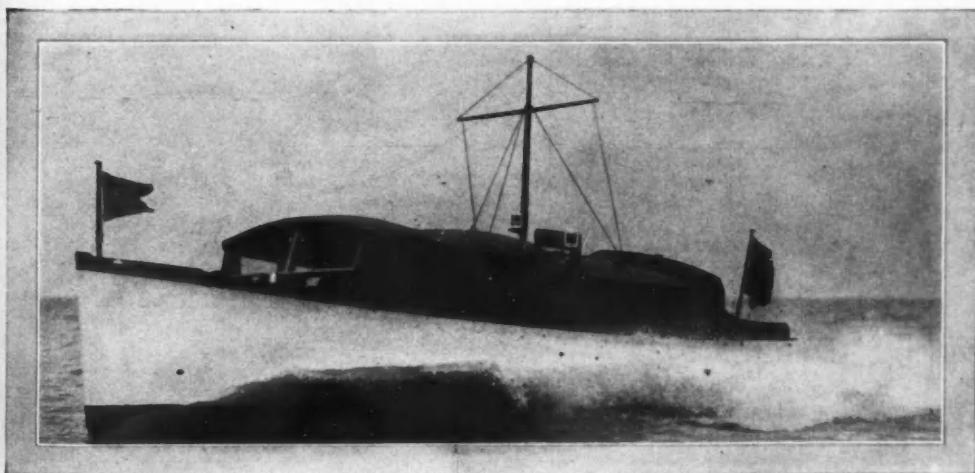
A smaller model 22 equipped with 120 h.p. and capable of 30 miles. Passenger capacity six persons

to the engine amidships. This makes it possible to walk from bow to stern of the boat without having to climb over engine compartments and other obstacles. Another design is for a 62½-foot cruiser intended to be a twin screw boat. This is a large and roomy hull arranged with a pilot and deck house, while below there is a stateroom forward which will accommodate a number of persons and the owner's cabin in the after deckhouse. In the extreme bow suitable quarters have been arranged for the crew.

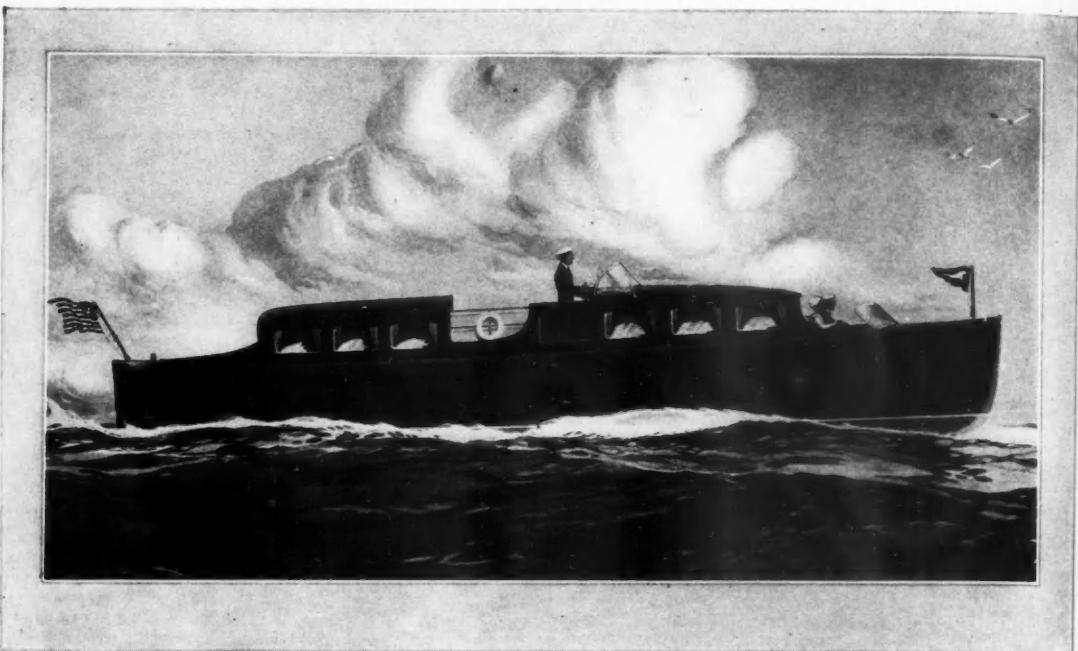
The Dachel Carter Boat Company are building a big 45-foot cruising yacht which is completely equipped for salt water service. It is a one man boat and provided with wide deck spaces and plenty of speed. It has been arranged to provide roomy accommodation for six or eight persons and the galley is larger than

might be found in many modern apartments. Structurally the hull is strong and durable with extra large timbers entering into the construction of the keel, ribs and planking. Special attention has been given to the underwater lines to provide the easiest driving hull. Twin screw power plants always insure a reserve source of power since it is very unlikely that both engines will fail at the same time. Four complete watertight bulkheads are built into the hull so that any damage which may be suffered will be confined to a single compartment.

The Vinyard Shipbuilding Company of Milford, Delaware, has built a very successful 50-foot twin screw cruiser for some time. This boat carries both forward and after cabins with a deck house between which serves as the day quarters for the boat. It is now



A standard Matthews 38 Speed Cruiser, powered with a 200 h. p. Kermath, performs beautifully at 28 miles



*The 40-mile 42-foot Sea Lyon commuter is to be powered with a pair of Sterling Petrel engines of 200 h.p. each*

planned to build also a generally similar boat but to make this 55 feet in length which will permit of easing out the accommodations to a slight extent all the way through which will give increased accessibility and greater freedom in the arrangement. As in the 50-foot boat the construction of the larger one will be substantial and durable throughout. The Vinyard Company is one of the few boat builders which control the timber used in construction and long pieces such as keels and other parts are logged out of their own forests and prepared in one piece for each boat.

There are many builders of fast standardized runabouts, all of which are closely similar although differing only in some details of construction or power plant. Speed is the essential characteristic of them all. Dart Boats, Inc., of Toledo, will continue to manufacture the three standard types which they have been build-

ing, these being a 30-foot sedan type, a 26-foot fast runabout and a smaller runabout, 22½ feet in length.

Chenevert & Company of Detroit, are specializing in two standard forms of 30-foot cruising boats, one of which is called Crusader and the other Corsair. While the hulls are generally similar, the arrangement in both boats differs in that the Crusader is intended for greater power and more speed. It is arranged with a cockpit forward and does not carry an awning over the after cockpit. The Corsair cruiser follows more closely the conventional style with the usual trunk cabin and the sheltered cockpit in the stern. These boats are both neat and comfortable and embody many desirable features for boats only 30-feet in length.

The Cape Cod Shipbuilding Corporation at Wareham, Mass., in addition to their extensive collection of outboard boats, also build several sizes of inboard



*The new 40-foot enclosed bridge deck Fleetwing is a most complete little ship*



*A pair of Gar Wood 28-foot 40-mile sedan runabouts trying their speed at Miami Beach*

24. MANUFACTURER

engined small boats. These are 16, 19 and 20 feet in length and designed for engines of moderate power. The fastest of them is the 20-foot runabout which has a speed of 12 miles when equipped with 15 h. p. Niagara engine.

Many prospective boat owners enjoy the fun of building their own boats and for these the Brooks Boat Company of Saginaw, Michigan, undertake to supply all of the material necessary to construct a boat complete without requiring the use of extensive shop equipment. Much of the heavy work is done and frames are sawn and bent into shape and other parts fitted so that they will just drop into place. Material for boats in many sizes including cruising types are as large as 37 and 40 feet and are available in this form.

In Maine the Down East Boat Company have specialized in a smaller type of runabout. They have built an 18-foot vee bottom hull and powered this with an engine capable of driving it at about 25 or more m. p. h. The material and workmanship which enter into the construction of this little boat make it an outstanding craft among the many runabouts now on the market.

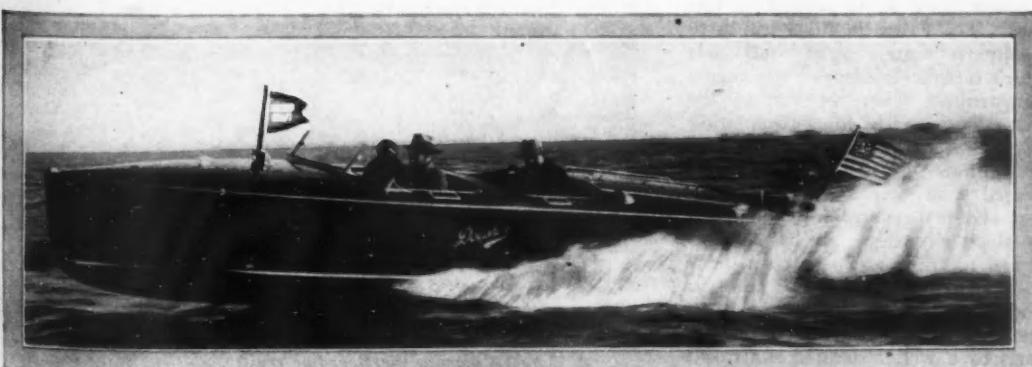
Another firm specializing in diesel engined cruisers is Nicolet & Deed of New York and Pittsburgh, who offer three models built to standard design. These

are 43 feet, 53 feet, both single screw, and a 54 foot twin screw cruiser all equipped with Standard full diesel engines.

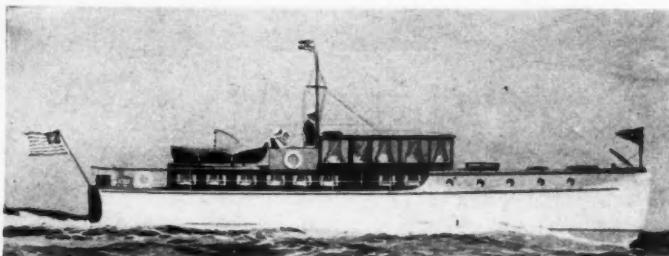
The 43 foot cruiser is a compact little craft offering a large deck house with the engine room under same, while forward is a cabin with two transoms and backs forming upper berths, toilet room and galley, off of which is a room for a paid man. Aft of the deck house is a roomy owner's state room with shower bath and lavatory. A 60 h.p. Standard diesel engine will drive her 12 miles an hour.

The 53 foot cruiser has a similar power plant for 14 miles and two berths in the deck house, as well as a double and a single state room aft and a crew's room and galley forward of the deck house. There is a cockpit aft. Frigidaire, electric lights, luxurious furnishings and complete equipment make this cruiser most attractive.

The twin screw diesel cruiser is 54 feet long by 12 feet beam. Two 60 h.p. Standard diesels will drive her 17 miles an hour and there is fuel for 1225 miles cruise. Two double state rooms with bath room and lobby between them are aft, while forward of the deck house is a galley and forecastle. Two berths are found in the combined pilot house and dining saloon.



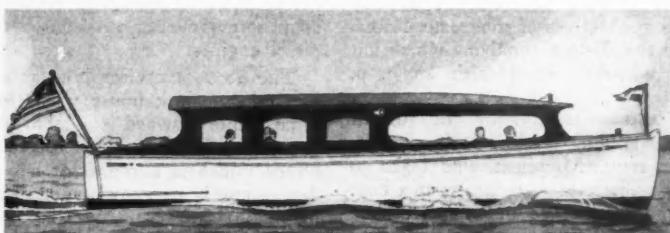
*The 30-foot Hacker craft for 1929 is arranged in three cockpits—two are forward and one aft of the engine compartment which encloses a 200 h.p. Sterling engine*



*A 56 foot commuter cruiser which is to be built as a standardized craft by Frederick K. Lord and to produce a speed of up to 30 miles*

Another well built boat of 42 feet in length is the Fairform Flyer being turned out by the Huckins Yacht Corporation at Jacksonville. This boat is a full cruiser, comfortable and roomy, but arranged with the speed of an express cruiser. Her arrangements provide space and convenience usually found in yachts of far greater size. She has a sporty cockpit in the bow with a seat seven feet in width. This can be reached from below without getting out on deck. There is a fully enclosed deckhouse amidships with an abundance of windows that open wide for ventilation. Below decks the owner's stateroom is forward and accessible from the deck house by two steps. Unusually wide berths are fitted and there are also numerous drawers, lockers and dresser space for clothing. Aft of the deckhouse,

and also down two steps is the main cabin which is paneled in American walnut with a touch of wood carving. The table here is fitted with velvet lined drawers for the silverware. Velvet is used for the upholstery, and the lining of all ceilings. Two Pullman berths are so arranged as to be always ready to snap open, and fall into on short notice. Other items include a drop front desk with many pigeon holes, a large shelf for a radio or victrola and additional closet and wardrobe spaces. The galley is further aft where the paid hand can attend to matters, and odors are carried off to leeward. Full size domestic galley equipment is carried. Safety has been a prime factor in the design of this boat. The Fairform Flyer has three absolutely water tight bulkheads which completely separate the engine compartment from the rest of the boat. Fuel may be filled from either side of the hull but cannot leak into the interior. The boat may be steered with only a very slight effort and maneuvered into the tightest places with ease. She has been designed to cruise at 20 miles an hour and will run faster at full throttle. She can accommodate a very large party for day trips and has the comforts of a well appointed apartment for extended cruising.



*The Newport Model, a standardized 34 foot cruising craft built by Staples Johnson and Company of Biddeford, Maine*

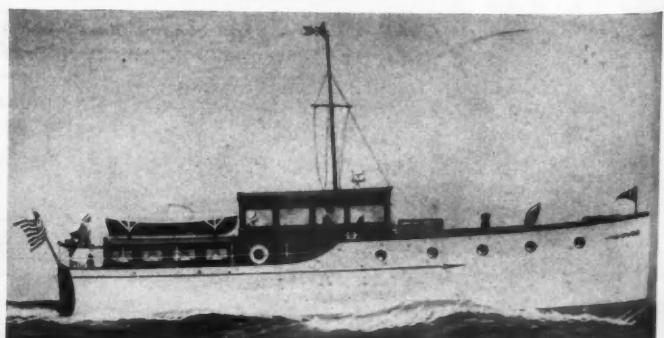
The diesel engine during the last year or two has come strongly to the front as power equipment for cruisers of what might be termed small size. Compared to the large ocean going diesel yachts of several hundred feet in length, these boats are small, but when the accommodation and facilities are considered they are quite large. Frederic P. Humphreys, naval architect of New York, has been among the leaders in this particular branch. He has undertaken the construction of several

small diesel engine boats and is now concentrating on a 52 foot cruising yacht with a 60 horse power Cummins diesel engine operating through a Morse reduction gear. This gives a speed of about 11 miles at 775 revolutions per minute. The fuel economy of these engines is noteworthy, as one of this size will burn three and one quarter gallons of fuel per hour at a cost of six cents per gallon. This makes the cost per hour about twenty cents or the cost per mile under two cents. This boat is arranged with full bridge control, and has accommodations of two single and

one double stateroom aft. These are equipped with hot and cold water. This boat has also accommodations for two paid hands, a captain and a steward. The construction and finish of the boat follow the usual arrangements of Humphrey boats,

and African mahogany is extensively used in construction and trim.

A new firm of boat builders is the Meteor Motorcar Company who have undertaken to build a standardized runabout 27 feet in length at a very moderate figure. The boat is to be of the concave vee bottom type, well built with double planked mahogany on the bottom and single planked sides. The engine selected is an eight-cylinder high speed machine of 125 h. p. which is able to produce a boat speed of 30 miles per hour. An abundant tank capacity is arranged so that the boat will be able to make long journeys.



*A 52 foot Cummins diesel engine cruiser which is to be built by Frederic P. Humphreys, New York Architect*

A

## New Finish only once a year

GIVE your boat a beautiful finish that will last all season, without the worry and expense of a mid-season over-haul. Finish her with VALSPAR!

Shell-back and Cabin Boy, Commodore and Gob all agree on one thing,—that the Valspar Marine Products are the only finishes that successfully resist the devastating action of water, wear, and a broiling sun.

Here are the Valspar Marine Products, accepted as standard all over the world:

**Valspar Bronze Bottom Paint**—A 100% efficient anti-fouling preparation that absolutely repels barnacles and moss for the entire season. Unreservedly the finest bottom paint made!

**Valspar Aluminum or Gold Paint**—For metal work. Anchors, chains, davits, stanchions—all metal work can be made to look permanently new and fresh with this everlasting finish.

VALENTINE & COMPANY  
386 FOURTH AVENUE  
NEW YORK, N. Y.

Chicago

Detroit

Boston

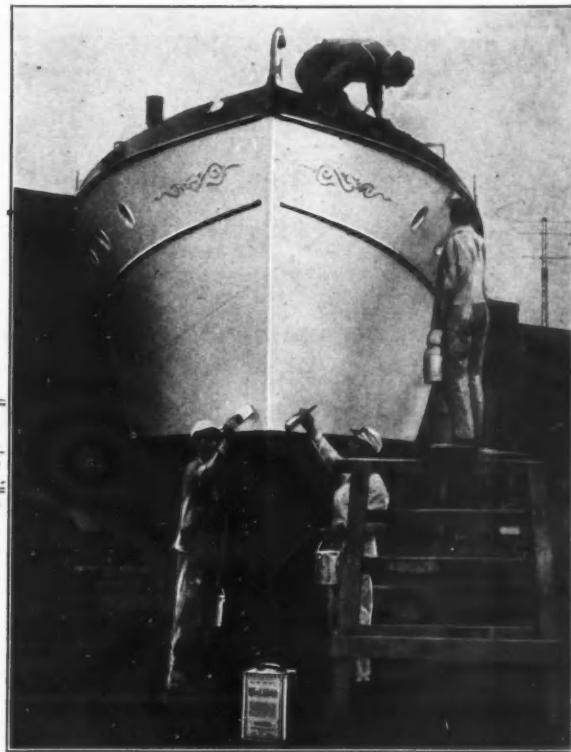


Photo by Rosenfeld

**Valspar Yacht White** (and Black)—For topsides. A dazzling white or intensely black paint which will not fade in the strongest sunlight. Dirt and scuff marks are easily scrubbed off without the least damage to the finish.

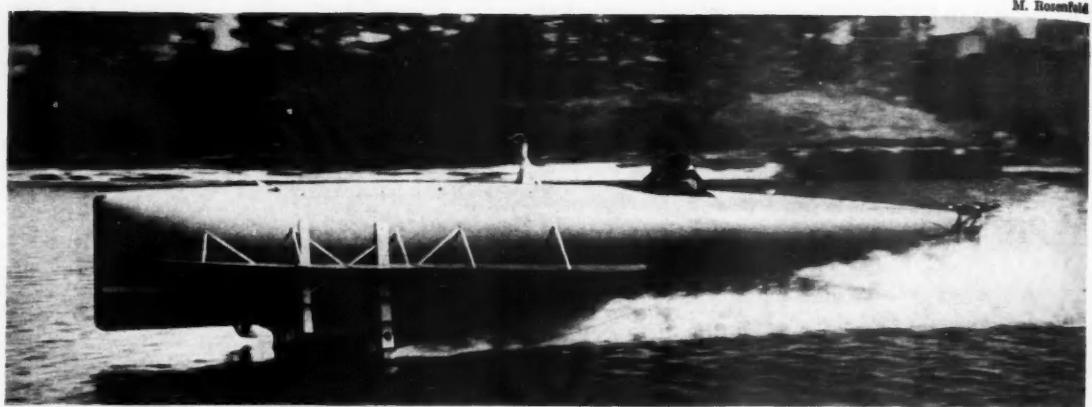
**Valspar Enamels**—as durable as Valspar itself. In White, Black and 13 colors. Exceptionally fine for cabin interiors, cockpit furniture and deck chairs.

**Valspar Clear Varnish**—as durable as Valspar itself. In White, Black and 13 colors. Exceptionally fine for cabin interiors, cockpit furniture and deck chairs.

**Valspar Varnish-Stain**—Valspar itself with the finest transparent stains added. Eliminates tedious work of staining. Varnish and Stain applied with one stroke of the brush.

**Valspar Porch and Floor Paint**—A Valspar product of exceptional toughness and durability. Comes in 8 colors and is eminently suitable for canvas-covered cabin roofs, cabin, cockpit, or deck-house floors where a solid color is desired.

VALENTINE'S  
**VALSPAR**  
The Varnish That Won't Turn White



*The hydrofoil speedboat driven by F. W. (Casey) Baldwin at the speed approaching 60 m. p. h. showing how the hull is lifted clear of the water by the action of the hydrofoils*

## YARD AND SHOP

*Notes of Interest to Both Owner and Manufacturer*

### SAILOR ON CABINET

FOR the first time in many years a yachtsman has been honored by an appointment to the presidential cabinet. Charles Francis Adams, of Boston, in accepting the office of Secretary of the Navy has encouraged all yachtsmen to feel that at last their sport would be recognized by an official who has first hand knowledge of it. Mr. Adams has long been prominently known as the skipper of the America's Cup Defender Resolute in her victory over Shamrock IV. Both Resolute and Vanitie were rigged as schooners during the previous season and under this rig Vanitie proved to be the faster of the two boats. For this year they are again rigged as Marconi sloops and the question as to what they will be able to do is still an open one. Whether the skillful handling by Mr. Adams was responsible for the victories of Resolute will also be determined since it is not likely that his official duties will permit him sufficient free time to engage in his favorite sport. Wherever yachtsmen assemble it is known that Mr. Adams is not the type of boatman who prefers to ride in a comfortable wicker chair. His choice is an old hat and a flannel shirt and in these he is perfectly at home behind the wheel of a racing sloop.

### NEXT TO FLYING

Surprising results were achieved in some tests made of a new hydrofoil boat on the Saugatuck River recently. This boat is a development of the famous HD 4, which was

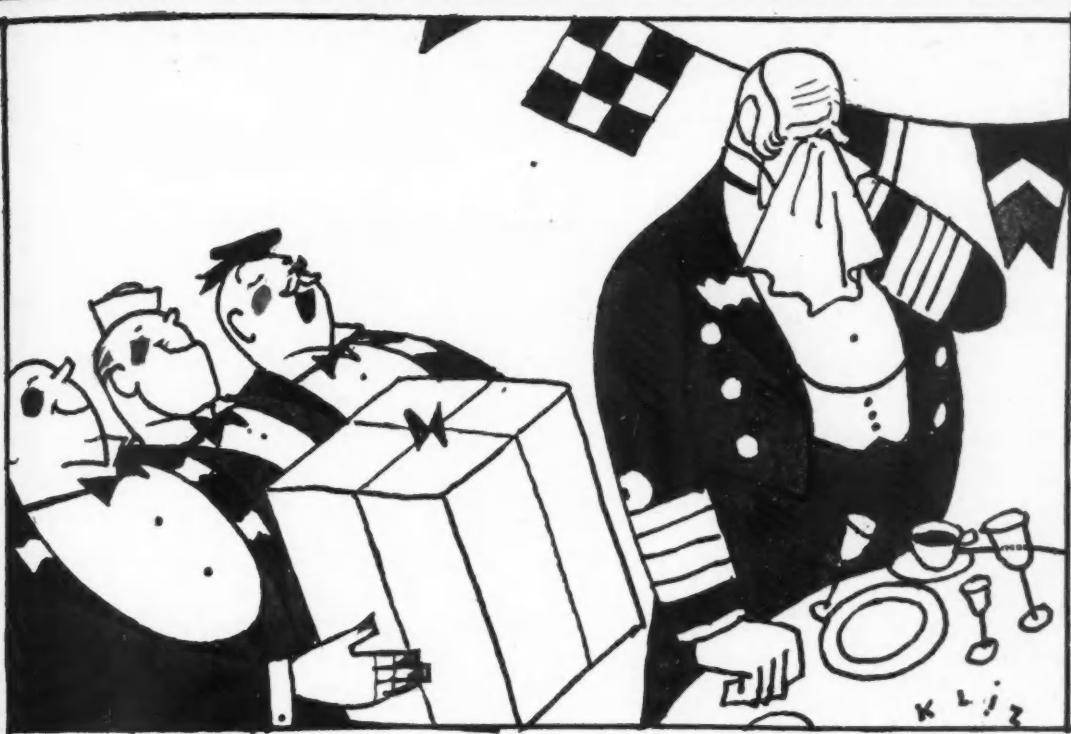
tried out on Bras d'Or in Nova Scotia by Alexander Graham Bell and F. W. Baldwin in 1918. This boat has been designed with the assistance of P. L. Rhodes, New York naval architect and was built in the plant of Ollendorff, Inc., at Saugatuck, Conn. The boat was originally intended for competition in the Harmsworth event last year but due to the suspension of the contest, work was stopped and when the challenge was again renewed it was too late to complete the boat. It is now equipped with an eight cylinder engine of 220 h. p. and since the tests made thus far have shown it to be entirely satisfactory, a more powerful engine developing 550 h. p. will be fitted in preparation for competition in this year's event. The hydrofoil principle which this boat uses provides at the bow a double set of hydrofoils which are in effect closely similar to the wings of an airplane. They are so arranged underneath the hull

that as the boat begins to move they exert a pronounced upward reaction which lifts the boat hull entirely clear of the water so that at full speed it is running with only the smallest and deepest of the foils immersed. An additional set is carried forward of the main foils which are termed a preventer set. These are entirely clear of the water when the boat is running at full speed and are only called into service in case of accidental injury to the operating foils. An additional set is carried on the rudder at the stern so that the boat is supported at three points in a remarkably steady manner. At speed it runs along very steadily and in rough water is less sus-

*(Continued on page 96)*



*One side of the honor medal presented to Gar Wood at Detroit for his achievements in high speed boating by the Union Internationale du Yachting Automobile*



## A Gift to the Outgoing Commodore

THE Old Skipper is retiring. He has spent some time (and some coin of the realm) piloting the Club fleet through regattas and cruises, dinners and vaudevilles. But the last duty of making a farewell speech looks like the thickest weather he has ever met. He plots his course through a fog of words, jury-rigs a few metaphors, and finally limps into a verbal port, flying a flag of distress and leaking a bit about the eyes.

Then is the precise moment for the Steward to lay before him the best gift of grateful clubmates—a service of Ovington Yacht China, each piece emblazoned

with the Commodore's own flag and the flag of the Club he served so well. Affection and a full appreciation of his services are lashed together in this sea-going gift.

Nor need the other members envy it unduly. Should you, too, wish to cheer coming cruises, a right little, tight little service for six costs but \$63, crystal to match for as little as \$37. Every piece will be marked with the flags of your yacht and club, and only three weeks required before you can ship and sail with it.



"Gifts from all over the World"

**OVINGTON'S**

Telephone: Caledonia 8702

437 Fifth Avenue  
New York, N. Y.



*An artist's sketch of the Riverside Drive Improvement project, New York City, which is being sponsored by the National Association of Engine and Boat Manufacturers*

ceptible to wave action than the usual type of hull. In operation the tips of the foils which are immersed have an area of about  $1\frac{1}{2}$  square feet which contrasts very sharply with the 30 or more square feet which the ordinary hydroplane requires. The greatest problem encountered thus far in the development of this boat is the one of propellers. The efficiency of the ordinary marine type propeller is still to a great extent an unknown quantity, and all assumptions as to the possible speed have been based on computations involving the known efficiencies in propellers of slower speeds and on craft of entirely different type. Basing the probabilities on the still uncertain data available it is confidently expected that speeds in excess of 100

m. p. h. will be realized with the larger power plant later. Experiments are also being conducted on hulls intended for the 151 inch hydroplane class as well as an outboard hull. In tests an outboard hull has been driven at speeds approaching 40 miles without difficulty or any signs of instability. The newer and more powerful engines now available will no doubt raise this speed limit to a point far beyond what has been considered possible heretofore.

The draft of HD 12, the boat tested, is over three feet at the propeller when the boat is at rest. As soon as she reaches a speed of about 20 m. p. h. the lifting begins and increases rapidly until at the top speed of about 55 m. p. h. the boat (Continued on page 190)



*The new Show Room of the Belle Isle Boat and Engine Co. at a prominent corner in Detroit. It will be close to the Memorial Park where the city is building 200 boat wells*

# "Folds Like a Jackknife!"



**Snap!** When your Elto Lightweight is through with its work for the day, you snap it "closed" — simple as shutting a pocket knife — and slip its compact 1½ cubic feet into luggage case or locker — and forget you have a motor!

The Super Elto hinging device (*patents applied for*) is the greatest boon that outboard engineering has yet developed for sportsmen, yachtsmen, and average users of outboard power.

Even without the compactness that this hinging feature makes possible, the Lightweight would still be outstandingly the preferred choice among all light motors.

It develops most power for weight . . . *liberal 3 horsepower; 38 pounds!* No other motor starts so easily . . . *a finger tip flip of the fly wheel starts it!* It is unbelievably quiet . . . *at a few yards distance the murmur of its exhaust cannot be heard!* It drives average boats 7 to 12 miles per hour. It is enormously rugged and dependable. Send for the Lightweight booklet!



Super Elto Lightweight  
Price, \$150.00



Mention MOTOR BOATING, 57th St. at Eighth Ave., New York

## The Super Elto Lightweight

MAIL COUPON FOR CATALOG

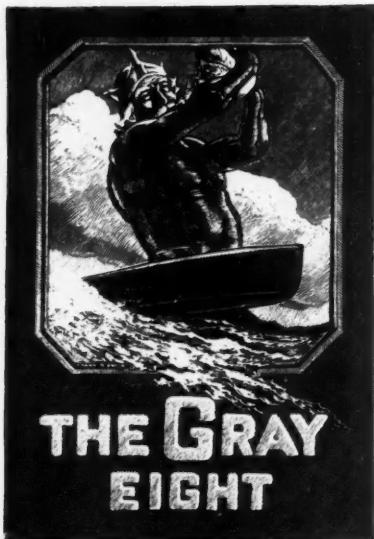
ELTO OUTBOARD MOTOR CO.  
Ole Evinrude, President  
Mission St., Dept. F Milwaukee, Wis.

Send me the Lightweight Booklet.

Name.....

Address.....

# A Big Statement



*Epitomizing the Spirit of New Marine Power found in the New Gray Eight, the fastest, mightiest marine power plant per pound of weight and per dollar of price ever presented.*

*Hacker Runabout Sportcraft. Over 36 miles per hour with new 1929, 125 H. P. Gray "Eight."*

*Richardson "Cruisenboat" powered by Gray "6-60" and "6-72," and Richardson "Florida Special" with Gray "Eight." Speeds 16 and 20 miles.*

*The "Fleet Wren Junior," built by Flying Fishin' Yacht & Shipbuilding Corp., Gray "6-72" Standard Equipment.*

*There is no line of marine motors as COMPLETE as Gray... no line embodying as many engineering features in advance ---and no line giving as much value per dollar in dependable power and years of service as Gray gives.*

*There is a reason why the Marine World has gone Gray.*

*Send for the Gray Book of Boats, 74 pages, with 217 illustrations. The boat speed, engine revolution, propeller size and pitch is given for each boat.*

**Gray Marine Motor Co.**  
680 Canton Avenue  
Detroit

*New A. C. E. Forty with Gray Eight and Maxx Reduction Gear—14 miles per hour guaranteed.*

# GRAY MOTORS

*Built by Pioneers ~ Engineers ~ Leaders*

*Advertising index will be found on 3rd last page*

# A Great Fact

For 1929 the Gray line provides 13 signal improvements typical of Gray engineering skill and leadership:

1. Flame Arrester. Kills flame propagation.
2. Drip Pan. Prevents serious situations from dripping gasoline.
3. Breather Connection. Now placed beyond Flame Arrester secure from flame propagation to crankcase.
4. Fuel Pump. Available on all Gray Sixes and Eights.
5. Hoisting Rings. Save time and are safer.
6. New Base design. For extra large oil capacity.
7. Cabin Ventilator. Prevents fires—keeps the hull sweet.
8. Oil Cooler. Standard on Gray 8 and High Speed Six-72.
9. Oversize Clutch and Reverse Gear.
10. Temperature Indicator. Standard on Sixes and Eights.
11. Temperature Control.
12. Built-in Reduction Gear. Morse Straight Line 2:1 Type.
13. Tachometer Fitting. Standard on Eights and H. S. Fours and Sixes.



The Great Gray Eight is the mightiest, fastest marine power plant per pound of weight and per dollar of price ever presented. A straight Eight, 59 inches over all and weighing under 800 pounds. Bore 3 1/4" stroke 4 1/2" giving a displacement of 322 cubic inches. Only 20" high above center of shaft. Designed by Gray engineers for that large company of boaters who hitherto have been compelled by space and price limitations to choose a "Six." Has flexibility and get-away that only an "Eight" can give. A motor of thrills that is taking the country by storm. Price, \$1,200.

A mighty "Six"—amazingly free from vibration. Has 3 1/8" bore, 5" stroke; 2 7/8" crankshaft. Length over all, 58 1/4". Oil pressure fed to all bearings. Oversize reverse gear used. A distinctly modern motor embodying all the advanced features of the 1929 Gray Line. Price, \$985.

A motor brought out after the Gray 6-40 and Gray 6-60 and expressly designed to give more power without increased size or price. Length over all, 50 1/4", 3 3/8" bore; 4 1/2" stroke; develops 72 H. P. at 3,000 R. P. M. at 2 1/2" crankshaft. A motor of wonderful smoothness, staunchness and power. Standard equipment on the A. C. F. 30 footer. Price, \$745.

A medium size, high speed, smooth running motor for runabout and cruiser work. Develops 30 H. P. at 1200 R. P. M. and 63 H. P. at 3000 R. P. M. Seven bearing, 2 1/2" crankshaft; full pressure lubrication; oversize clutch; largest reverse gear of any motor in its class. Standard equipment on Richardson 28 foot Crusabout. Price, \$645.

Shortest, lightest, lowest (above center of shaft) sturdies Six in its power class. Big crankshaft, big bearings, long pistons, full pressure lubrication, flame arrester. Develops 48 H. P. at 3,000 R. P. M. Standard equipment in stock boats made by Richardson and A. C. F. Price, \$545.00.

Gray's largest heavy-duty motor. 5" bore, 6" stroke. Big crankshafts, big bearings—a big motor throughout made for the big job. A giant in performance. Price, \$1100.

A splendid motor famous for its brute strength and dependability. Develops 31 H. P. at 1000 R. P. M. and up to 55 H. P. at 1800 R. P. M. Length over all, 50 1/4"; 4" bore; 5" stroke; 2 1/2" crankshaft. Ideal for auxiliary craft, ferry boats, fishing and work boats. Extensively used by the U. S. and foreign governments. Price, \$695.

A new Gray motor built in answer to a demand by boaters for a bigger "4-30"—a motor possessing greater power at the least possible price. The 4-44 has greater displacement than the 4-30—only 2" greater length and 100 lbs. more weight, installs on the same bed and provides 50% greater horsepower at a small increase in price. It is short, compact and low; weighs 660 lbs. Price, \$444.00.

A perfectly balanced, sturdy, medium compression "Four," of unusual speed, smoothness and power. Four cycle, 3 1/8" bore; 4 1/2" stroke. Over-all length, 42"; crankshaft 1 1/2" diameter, drilled for pressure lubrication. Oil pump on the outside forward, accessible and removable without removing any part of motor. Develops 33 H. P. at 2400 R. P. M. for continuous operation. Price, \$395.



# GRAY MOTORS

# A GREAT Book of BOATS

*"Powered by GRAY"*

Sixty-four pages, 217 illustrations of boats of every kind. Cruisers, speed-boats, knockabouts, ferries, fishing-boats big and little, ketches and schooners. The biggest and best source of boat information available.

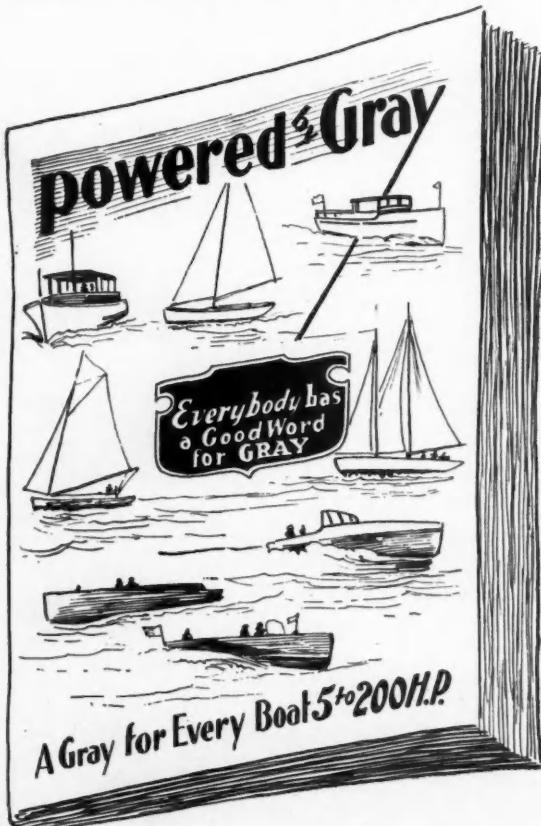
Information on horse power, propeller sizes and boat speeds for hundreds of installations makes it easy to choose the best power and wheel combination for your needs.

A trip around the world with "Power by Gray." Hundreds of letters from Gray users everywhere testify to the dependable performance of Gray Marine Motors. The actual records of mileage and gas consumption will be especially interesting to work-boat and cruiser owners.

It will be a pleasure to send you this valuable book.

## "Ten Commandments and More"

The best book of motor-boat "Do's and Don'ts" ever written. Easily understandable, non-technical, sure-fire information on how to get the utmost in performance, pleasure and long life out of your motor.



Written for the man who doesn't want to know more than he has to—but complete enough for a voyage to China. Pocket-size, heavy paper, and yours for the asking.

...♦♦♦...

## Free On Request

Just send us your name and address, and mention this magazine. Return mail will bring you "Powered by Gray" and the "Ten Commandments"—also (if you ask it) our new 1929 catalog, which fully describes every motor in the complete Gray line.

...♦♦♦...

**Gray Marine Motor Co.**  
680 Canton Avenue  
Detroit

APRIL, 1929

## Reference table of Gray specifications, prices and special equipment. Effective April 1st, 1929.

For Explanation of Letters see bottom of page	4-30	4-44	4-50	6-40	6-60	6-72	6-90	Eight
Bore and Stroke . . . . .	3 $\frac{3}{8}$ " x 4 $\frac{1}{4}$ "	3 $\frac{3}{8}$ " x 4 $\frac{1}{4}$ "	4" x 5"	3 $\frac{1}{8}$ " x 3 $\frac{7}{8}$ "	3 $\frac{3}{8}$ " x 4"	3 $\frac{3}{8}$ " x 4 $\frac{1}{2}$ "	3 $\frac{3}{8}$ " x 5"	3 $\frac{3}{8}$ " x 4 $\frac{1}{2}$ "
Displacement . . . . .	151	200.5	253	200.6	214.7	249	353	322
Weight . . . . .								
Iron . . . . .	490	660	850	680	660	740	900	900
Aluminum . . . . .	400	None Used	None Used	540	570	640	850	830
Weight with Reduction Gear . . . . .						900 lbs.		1100 lbs.
Ignition—Prices . . . . .								
Magneto only (Bosch) . . . . .	\$395 I	\$444	\$695	\$545				
Starter, Gen., Timer . . . . .	\$445 I	\$494	\$735 I	\$545 I	\$645 I	\$745 I	\$985 I	\$1200
	\$465 al			\$565 al	\$665 al	\$795 al	\$985 al	\$1200
Starter, Generator, Mag- neto . . . . .	\$495 I	\$544	\$785 I					
	\$515 al							
Starter, Gen., Mag., Tim., double set spark plugs . . . . .			\$835 I	\$660 I \$680 al				
Starter, Gen., two Timers, double set spark plugs . . . . .			\$750	\$571 I \$591 al				
With Built-in Reduction Gear . . . . .								
Reverse Gear . . . . .	Par.	Par.	Joes	Par.	Par.	Joes	Joes	Joes
Crankshaft Diam. . . . .	1 $\frac{1}{2}$ "	2 $\frac{1}{8}$ "	2"	2 $\frac{1}{16}$ "	2 $\frac{1}{8}$ "	2 $\frac{3}{8}$ "	2 $\frac{7}{8}$ "	2 $\frac{5}{8}$ "
Piston . . . . .	Iron	Iron	Iron	Semi-steel	Alloy	Semi-steel	Iron	Alloy
No. of Rings . . . . .	3	4	3	4	4	4	4	4
Compression ratio . . . . .	4.6:1	4.6:1	4:1	4.6:1	5:1	4.6:1 cr 5.5:1 r	4.6:1	5.5:1 cr 6:1 r
Bearings . . . . .								
Rod . . . . .	1 $\frac{1}{2}$ " x 1 $\frac{7}{16}$ "	2x1 $\frac{7}{8}$ "	2" x 2 $\frac{1}{4}$ "	2" x 1 $\frac{7}{16}$ "	1 $\frac{7}{8}$ " x 1 $\frac{3}{8}$ "	2 $\frac{1}{8}$ " x 1 $\frac{3}{8}$ "	2 $\frac{1}{16}$ " x 1 $\frac{3}{8}$ "	2 $\frac{1}{4}$ " x 1 $\frac{3}{8}$ "
Diam. Piston Pin . . . . .	$\frac{3}{8}$ "	1 $\frac{1}{8}$ "	1 $\frac{3}{8}$ "	1 $\frac{1}{16}$ "	1"	1"	1"	1"
Diam. Main Bearings . . . . .	1 $\frac{1}{2}$ "	2 $\frac{1}{8}$ "	2"	2 $\frac{1}{16}$ "	2 $\frac{1}{8}$ "	2 $\frac{3}{8}$ "	2 $\frac{7}{8}$ "	2 $\frac{5}{8}$ "
Number of Main Bearings . . . . .	3	3	3	3	7	7	4	5
Bearing Lengths begin- ning forward end . . . . .	2 $\frac{3}{4}$ " 1 $\frac{9}{16}$ " 1 $\frac{33}{32}$ "	2 $\frac{11}{16}$ " 2 $\frac{1}{2}$ "	3 $\frac{1}{16}$ " 2 $\frac{1}{16}$ "	2"	1 $\frac{1}{16}$ " 1 $\frac{1}{16}$ , 1 $\frac{1}{16}$ , 2 $\frac{1}{16}$ , 1 $\frac{1}{16}$ , 1 $\frac{1}{16}$ , 1 $\frac{1}{16}$	1 $\frac{1}{16}$ " 1 $\frac{1}{16}$ , 1 $\frac{1}{16}$ , 2 $\frac{1}{16}$ , 1 $\frac{1}{16}$ , 1 $\frac{1}{16}$ , 1 $\frac{1}{16}$	3 $\frac{1}{16}$ , 1 $\frac{1}{16}$ , 1 $\frac{1}{16}$ , 2 $\frac{1}{16}$	2 $\frac{1}{16}$ , 1 $\frac{1}{16}$ , 1 $\frac{1}{16}$ , 1 $\frac{1}{16}$
Coupling bored standard Dimensions . . . . .	1 $\frac{1}{8}$ "	1 $\frac{1}{8}$ "	1 $\frac{1}{8}$ "	1 $\frac{1}{8}$ "	1 $\frac{1}{8}$ "	1 $\frac{1}{8}$ "	1 $\frac{1}{4}$ "	1 $\frac{1}{8}$ "
Length overall . . . . .	42"	46 $\frac{1}{2}$ "	50 $\frac{1}{4}$ "	50 $\frac{1}{4}$ "	51 $\frac{1}{4}$ "	50 $\frac{3}{4}$ "	58 $\frac{3}{4}$ "	59"
Space reqd. betw. stringers . . . . .	12"	12"	13 $\frac{1}{4}$ "	14"	14"	14"	17 $\frac{1}{4}$ "	14"
Hgt. shaft ctr. to top of plug . . . . .	15 $\frac{7}{8}$ "	16 $\frac{1}{4}$ "	19 $\frac{5}{8}$ "	15 $\frac{3}{8}$ "	16 $\frac{1}{2}$ "	16 $\frac{1}{2}$ "	20 $\frac{1}{8}$ "	18 $\frac{3}{8}$ "
Firing order . . . . .	1-3-4-2	1-3-4-2	1-2-4-3	1-5-3-6-2-4	1-5-3-6-2-4	1-5-3-6-2-4	1-5-3-6-2-4	16258374
Water inlet: Exhaust pipe . . . . .	$\frac{5}{8}$ -1 $\frac{1}{2}$ "	$\frac{3}{2}$ -2	$\frac{3}{2}$ -2	$\frac{3}{8}$ -2	$\frac{1}{2}$ -2	$\frac{1}{2}$ -2	$\frac{1}{2}$ -2 $\frac{1}{2}$	$\frac{3}{4}$ -2 $\frac{1}{2}$
Voltage . . . . .	6	6	6	6	6	6	6	6
Lifting Rings . . . . .	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Oil Filter . . . . .	b	b	b	b	b	b	b	b
A. C. Fuel Pump . . . . .	b			m	Yes	m	Yes	Yes
Temperature Indicator . . . . .	c	c	c	c	Yes	Yes	Yes	Yes
Tachometer turns . . . . .	ccw	ccw	ccw	ccw	ccw	ccw	d	cw
Tachometer fitting . . . . .	e	b	b	e	f	d	d	f
Export case . . . . .	49" x 31"	54" x 33"	58" x 38"	58" x 32"	60" x 32"	58" x 34"	65" x 37"	67" x 33"
Extra for export case and prepaid freight to N. Y. . . . .	x20"	x20"	x27"	x23"	x23"	x26"	x27"	x26"
Opposite rotation available . . . . .	\$16	\$20	\$24	\$20	\$24	\$30	\$36	\$40
Oil Cooler . . . . .	g	g	g	g	h	i	g	Yes
Built-in Red Gear. weight-lbs. . . . .	g	g	g	g	h	i	g	1115
Flame Arrester . . . . .	Yes	Yes	g	Yes	Yes	Yes	Yes	Yes
Drip Pan . . . . .	Yes	Yes	g	Yes	Yes	Yes	Yes	Yes
Cabin Ventilator . . . . .	g	g	g	g	g	g	g	t
Magnetic relay . . . . .	b	b	b	b	b	b	b	Yes
H.P. at 800 r.p.m. . . . .	14	19	25	17	20	23	28	33
H.P. at 1000 r.p.m. . . . .	17	24	31	22	25	28	37	41
H.P. at 1200 r.p.m. . . . .	21	28	37	26	31	34	45	50
H.P. at 1400 r.p.m. . . . .	23	32	43	30	35	40	53	59
H.P. at 1800 r.p.m. . . . .	28	39	51	38	44	51	69	77
H.P. at 2200 r.p.m. . . . .	32	43		43	53	60	78	92
H.P. at 2600 r.p.m. . . . .	32				58	67		118
H.P. at 2900 r.p.m. . . . .					61	72		126
H.P. at 3300 r.p.m. . . . .								132

—All iron. al—Aluminum as shown. b—\$10.00 extra. c—\$6.00 extra. cr—Cruiser type. cw—Clockwise. ccw—Counter clockwise. d—Cannot be supplied on "6-90." e—Tachometer fitting is standard on "4-30", "6-40" and "6-72" aluminum motors and \$10 extra on iron motors "4-44", "6-40" and "6-72". f—Tachometer fitting, standard equipment on both iron and aluminum motors on model "6-60" and EIGHT.

g—Not available on this model. h—\$25.00 extra when specified. i—\$25.00 extra on iron "6-72" and standard equipment on high speed aluminum "6-72". m—Fuel pump is \$10.00 extra on Iron Model "6-40" and "6-72" motors and standard on aluminum model. r—Runabout type. s—Cabin ventilator \$35.00 extra on "6-72". t—Cabin ventilator standard on cruiser-type eights. u—Ready Sept. 1, '29.

## ACCURACY IN RECORDS

(Continued from page 47)

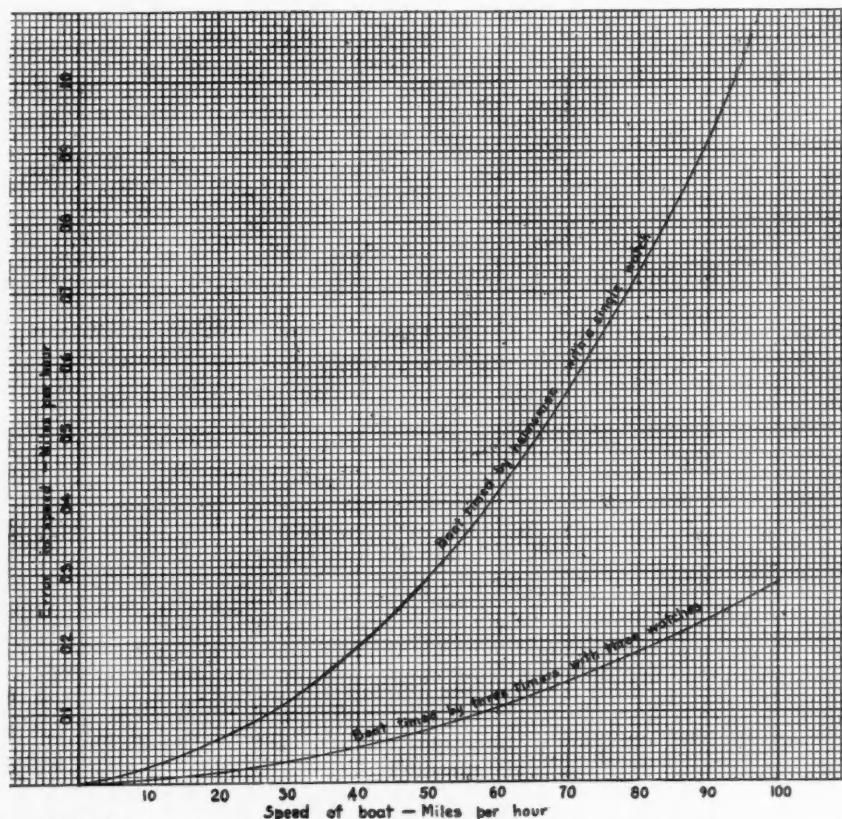


FIGURE 2. Precision attainable on measured mile by timers on the boat.

ranges ashore the attainable precision falls off due to errors in estimating the exact coincidence of the range marks and therefore the exact point at which the boat crosses the beginning and end of the mile. It is difficult to give

any data of real value as the precision attainable by this method but a few simple experiments indicate that the driver may misjudge the position of the start and finish lines by a sufficient amount to produce an error of some eleven feet in the length of the course. Timers who pay attention is not distracted by the duties of helmsman will do much better and should not misjudge the coincidence of ranges so as to produce an error in the length of the course of more than about 3 feet. The error in judging the positions

(Continued on page 152)

Note: The formulae are derived in much the same way as the preceding ones.

$$dv_t = \frac{3600L_m}{t^2} dt, \quad dL_t = \frac{3600L_m}{t^2} dt$$

See derivation given in previous notes.

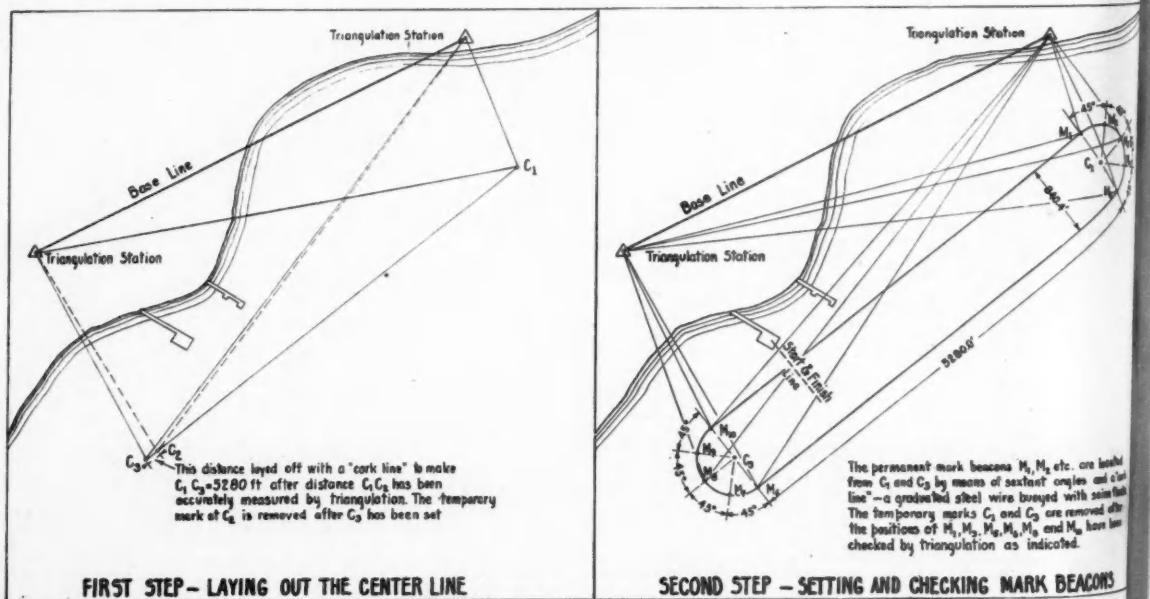
The assumed criterion of effects of the errors due to timing and error in length of course permits us to write equation

$$dv_t = dL_t = \frac{dv}{\sqrt{2}} = .707dv$$

See previously mentioned reference books for reasons for dividing by the square root of 2 instead of by two.

$$.707dv = \frac{3600L_m}{t^2} dt \text{ and therefore } dt = \frac{.707^2}{3600L_m} dv = \frac{t^2}{5100L_m} dv$$

$$.707dv = \frac{3600L_m}{.682} dt \text{ and therefore } dt = \frac{.707}{.682} dv = \frac{1.04}{.682} dv$$



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atwaterships on a mini-  
mum floor space of 26  
inches by 5 feet. Mail us  
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## ACCURACY IN RECORDS

(Continued from page 102)

the start and finish line in both the above cases must be combined with errors due to timing in order to get an idea of the attainable precision of this method of determining a vessel's speed on the measured mile. A single stop watch in the hands of the driver should give the time to within 2/5 of a second while the average reading of three good watches in the hands of experienced timers should be within 1/10 second of correct. Figure 2 gives the attainable precision of measuring the speed of a boat on the measured mile as computed from the formula for combining the errors due to timing and length of course which is given with its derivation in the second footnote. The distinction between figures 1 and 2 should be clearly understood. Figure 1 shows the precision with which timing must be done from shore to attain various degrees of precision in the resulting speed records in miles per hour of boats traveling at various speeds. Figure 2 shows approximately the precision which can be expected when the timing is done by the driver using a single stop watch and when it is done by three timers riding in the boat. The data given by figure 2 is only of incidental interest as all sanctioned mile trials under both A. P. B. A. and M. V. P. B. A. rules are timed from shore and the latter organization furthermore requires electrical communication between the timers at both ends of the mile.

Turning from the mile trial run over a course defined by shore ranges to the problem of boats running a complete circuit, or circuits, around a course marked by buoys or beacons it is found that the latter case is considerably complicated by inevitable errors in the length of the course. It therefore is necessary to find out what precision is re-

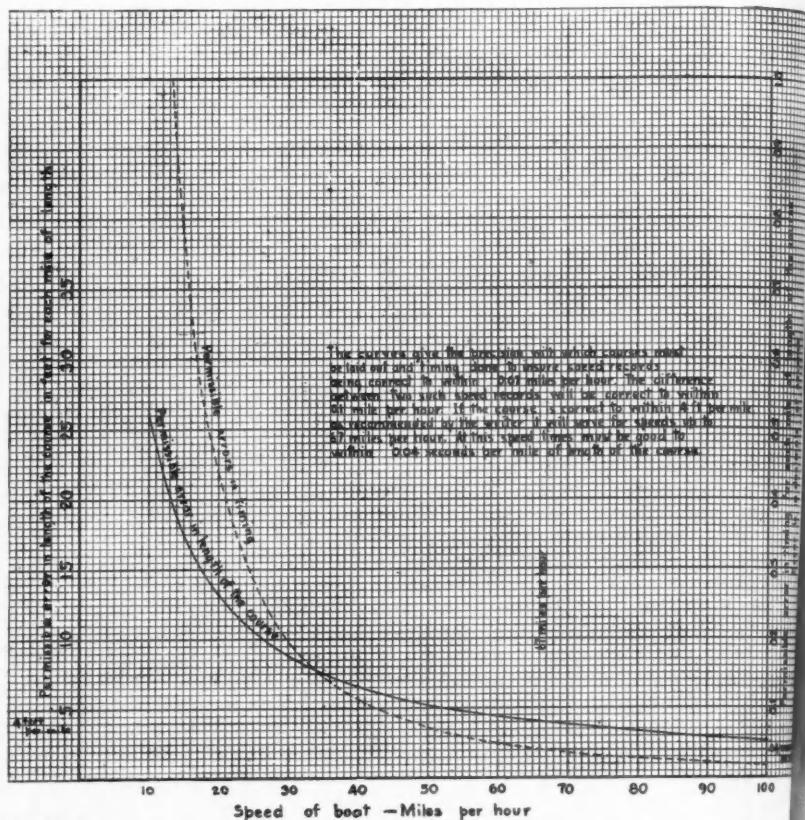


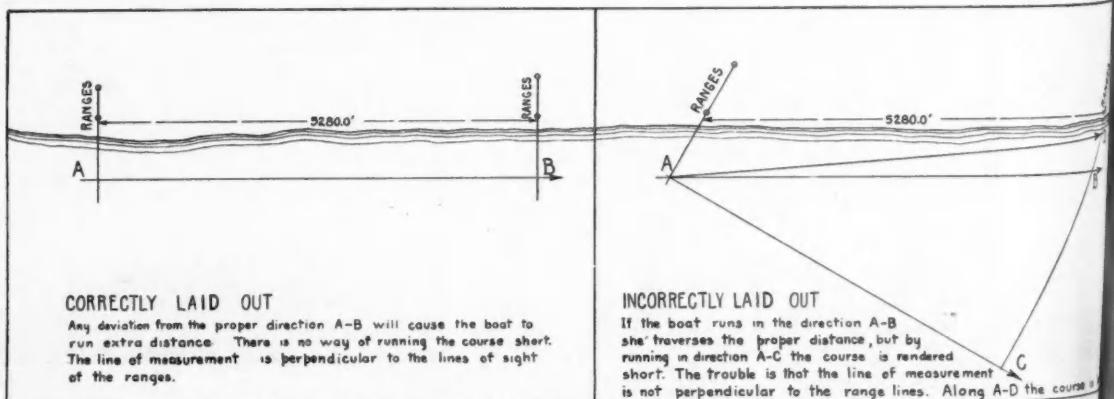
FIGURE 3 Required precision of timing and length of the course for closed courses

quired in both laying out the course and timing the boat over it to insure speed records which are precise to within certain definite and specified limits. If the reasonable assumption is made that the error in length of the course and the error in timing have equal effects in producing total error  $dv$  it will be found that the permissible errors are given by the formulae

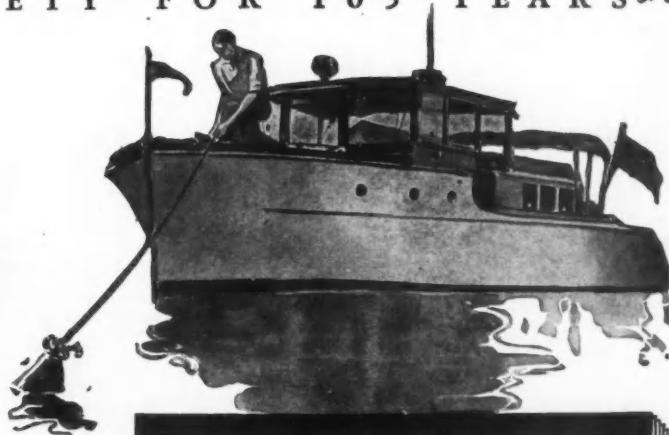
$$dt = \frac{t^2}{5100L_m} dv$$

$$dL_t = 1.04t dv$$

(Continued on page 115)



Correctly and incorrectly laid out measured mile courses

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*How to Determine What Rope Gear You Need*

In our new Free booklet, "Rope for the Boatman," is a full page devoted to tables which show you precisely what quality, size and length of cable power-craft and sailing-craft of different over-all lengths should have. For example:

Over All Length of Boat	POWER CRAFT			SAILING CRAFT		
	FOR LIGHT ANCHOR		FOR HEAVY ANCHOR		FOR LIGHT ANCHOR	
Length of Cable	Diam. If 1st Class Manila	Diam. If Plymouth Bolt Rope	Length of Cable	Diam. If 1st Class Manila	Diam. If Plymouth Bolt Rope	Length of Cable
20'-25'	100' 100'	1 1/2" 1 1/4"	7 1/2' 800'	150' 150'	8 1/2" 1 1/2"	9 1/2' 1 1/4"
50'-60'	180' 180'	1 1/4" 1 1/2"	7 1/2" 800"	150' 150"	8 1/2" 1 1/4"	9 1/2" 1 1/2"

Sailing-craft require heavier gear than power-craft because they lie more on the surface and tug harder. Therefore, in our booklet, you'll find in corresponding columns the figures for sailing-craft of these over-all lengths.

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You Can Trust*



*Looking down the river from Prince Albert fire hall tower*

## BOATING ON ARCTIC WATERWAYS

*(Continued from page 37)*

to replenish gasoline. I had still a couple of cans in reserve but, with the next town—Battleford—still several hundred miles away, I did not care to risk letting the supply run lower than could be helped.

I found the general store and post-office at the top of the grade occupying the historic site of the old Hudson's Bay post at Victoria Settlement. Part of the original quadrangle still remained. The factor's house now served as the home of the post-master-merchant, while the old log trading store—with a front of galvanized iron pressed in imitation of cut stone—was used as a warehouse. My three-inches-to-the-mile Geological Survey map showed the old holdings still laid out in narrow strips, each with a river frontage—a similar practice to that followed on the lower Mississippi, by which the parcels along this so-called Coast were often but a hundred feet or so wide on the levee though half a mile or more in length. The lines of these dachshund plantations are preserved to the present day.

The old post-master at Pakan had boated on the river for a number of years in the early days, but his experience was limited to the stretch between Edmonton and Battleford. He said that a shallow rapid a couple of miles below used to hang up their rafts occasionally at low water, but that a place called Crooked Canyon—which I would hardly reach for another day or two—was the only one that might be too rough for my boat.

But while the genial old chap was conservative enough about the boatability of the river, he was a pronounced alarmist on the score of its potability. Medical analysis, he declared, had disclosed the existence of typhoid germs in dangerous quantities all the way from Edmonton to Lake Winnipeg. When I expounded the theory that ten miles flow over sand and under sunshine were supposed to purify the foulest river he was still unshaken. To my assertion that I had drunk with impunity the Missouri below Omaha and Kansas City and the Mississippi below St. Louis and Memphis, he countered with the assertion that those cities probably did not breed as virulent a germ as did Edmonton, which—from bacilli to bums—was a hard-boiled burg if there ever was one. When, in conclusion, I confessed that I had already been lapping up Saskatchewan water for the best part of two days, he only shrugged his shoulders, smiled pityingly and asked me to pick my favorite flower from his old-fashioned garden. He would send a bunch to the Battleford hospital if I said the word—yes, Battleford would be about right. Typhoid germs were slow workers but very thorough—yes, very thorough.

I shall hardly need to add that the only times I was at all upset by water on the whole voyage were when I was so ill-advised as to fill my canteen from some farmer's rain-cistern or

barny old-exposed well. The sun-and-sand theory is a fairly safe one to follow, especially for a man with a good digestion and not over-prone to worry.

There were a few rocks sticking up in the long shallow riffle below Pakan but the slow current made them easy to avoid. A few miles beyond the river crossed the 54th parallel and touched the farthest north point in its whole course from the Rockies to Lake Winnipeg. It turns south almost at once and for the final eight or nine hundred miles of its length meanders in a direction which approximates a mean of almost due east.

Running on until the approach of darkness made it no longer possible to tell snags from shadows, I landed and made camp on an uncovering boulder bar where a huge pile of dry driftwood brought fuel easy to hand. The rocks were still a bit slippery with half-dried silt, but moisture and bumps were all one to my inflatable rubber sleeping-pocket, true and tried companion of many seasons of mountain, desert and river travel. The warm night air brought out a few mosquitoes, but not enough to interfere seriously with a dip before turning in. That evening paddle was maintained as a regular feature until jealous winter clapped down the lid on it three weeks later at freezing Lake Cumberland.

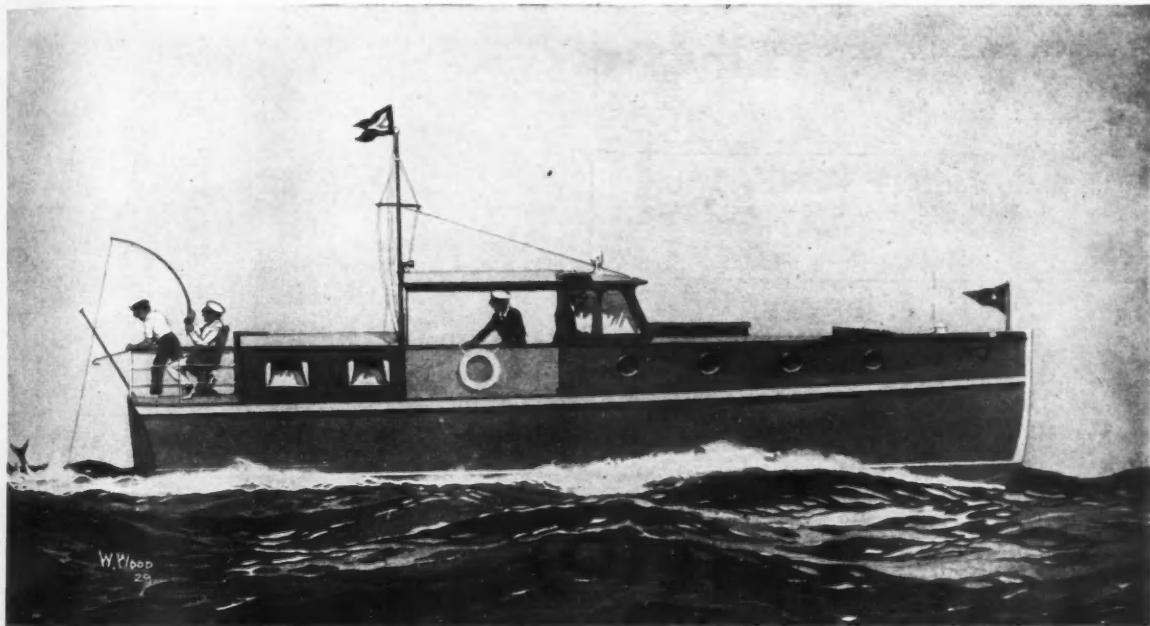
Awakened by the sun shining in my face, I made hasty breakfast and pushed off onto a river that flowed with quickening current between ever heightening banks. At Desjarlais Ferry I heard a more serious and circumstantial account of the menace of the now-imminent Crooked Canyon. The ferryman called in place Hell Bending Rapids, and said these were formed where the river tore its way through between the Snake Hills on the north and the Snipe Hills on the south. A good many boats had been lost there, principally because they could not negotiate the hair-pin turn. The river, being flexible, made the sharp bend by rolling over on its back and squirming through, but boats—unless very skillfully handled—drove right ahead and piled up on the rocks of the right bank. It was fortunate my boat was light, as that would make it easy to take right out of the water and carry round. For ten dollars he would tie up his ferry and give me a hand.

As this was hardly compatible with the known fact that the gorge had once been navigated by clumsy stern-wheel steamers I decided to go out and survey the devastating Hell-bender before committing myself to the employment of expert help in getting through. That the gorge did a right sharp bit of bending was evident as soon as it came in sight, but not even a solid belt of white and a roar that made itself heard a half-mile up

*(Continued on page 144)*

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Draft 3' — Power Plant One 6 cyl. 60 h.p.  
Diesel Engine. Cruising Radius 1000  
miles. Cruising Speed 13-14 miles per  
hour. Accommodations for 6, plus paid  
hand. Equipment complete.

SO insistent was the demand of yachtsmen that we add a 38-footer to the Humphreys line of Diesel Cruisers, we just couldn't escape the Pilot. So here she is! Right now she's building for a goodly number of owners.

She possesses the ample accommodations of a much larger boat and the snug convenience of her size. She sleeps six, plus crew of one. Her cruising radius is 1,000 miles! The fire hazard is no longer present. It costs next to nothing to operate her. She's Diesel!

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## *The Main Sheet*

W. D. Edenburn—Editor  
Business Office  
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## Keeping Track of the Boats

(Continued from page 16)

trend with actually measurable facts. To the investigator who is seeking an impersonal and direct measure of the continuing growth of the motor boating sport the records methodically compiled by the enforcement of the Act of June 7, 1918 offer as dependable a guide as is to be found anywhere. This is so because the act gives us a record of what has been taking place in what may rightfully be called the cross-section of the motor boating world. Elimination is made of the highest and the lowest classes of vessels, both in regard to average cost per vessel and complexity of operation, so that we can get a true picture of the way the tide is heading in regard to the total numbers of those types of craft which go to make up the real foundation of the motor boating sport.

Nobody would make a study of the increases in the number of documented pleasure craft in use in this country and expect to derive from the results of such a survey an impartial indication of the progress being made by the motor boating sport in general. The number of such documented craft in proportion to the total number of pleasure motor boats in use is so very small that any study of such a specific type of craft would result in inferences based upon too narrow an observation. Moreover, since the majority of the documented yachts are so palatial and costly as to be purchasable by only the very rich, the study of that particular class of craft would furnish nothing worth-while as to the existent condition of a sport so generously indulged in by people of middle or average means. The best, then, that an observation limited to documented pleasure craft can do is to show us the new high spots in costliness and in elegance which are being reached in motor boat construction and to demonstrate the rapidity with which people wealthy enough to choose any form of recreation they might desire are turning to motor craft for their outdoor pleasures.

On the other hand, a study limited to the outboards exclusively would result in conclusions and predictions of equally possible error. While the history of the outboard takes us back something over fifteen years, it has been only within the past three years that their increase in numbers has been so enormously breath-taking. Even though the outboards persist in selling annually by hundreds of thousands as they have for the past three years, the very type of the craft excludes the record of their annual increases in numbers from consideration as an appropriate method of measuring the growing popularity of the motor boating sport. A huge number of the outboards in use are employed by individuals whose use of such craft is their only affiliation with the motor boating sport. By such people the outboards are used with greater and greater frequency in the kindred sports of fishing and hunting and for other utility uses which have no direct relation to the motor boating sport. Furthermore, the navigation problems encountered in the operation of such craft certainly do not warrant our believing that any great number of the operators of the outboards are real dyed-in-the-wool boating men. Probably the greatest contribution the outboard type of motor boat will render to the sport will be the number of outboard enthusiasts who, having tasted the pleasures to be found on the water, will graduate into the class of deep-sea motor boat men in order to exercise and develop the dexterity and skill called for by deep water navigation.

The numbered motor boats, however, offer in themselves a group that is sufficiently large and so made up of the substantial types of motor craft as to furnish, by the record of their increasing numbers, a true criterion of the sport's progress. These numbered craft include in their ranks all pleasure motor boats of less than 16 net tons and the individual vessels are of every conceivable type, costing from several hundred up to many thousands of dollars. The owners of these craft, some of whom are relatively poor, many of whom are rich and most of whom are of moderate means, are for the most part the real die-hard motor boat sportsmen. Their boats represent a real financial effort they had to make in order to indulge in the sport, they operate their craft themselves, they attend to a large portion of the repairing and upkeep work and they are the folks to whom motor boating is a predominating form of recreation.

The wealthy have their documented motor craft for spasmodic use and the ranks of the outboard owners show a constant turnover. Neither class, therefore, is truly orthodox; neither gives us a photographic picture of the typical motor boat sportsman. In the owners of the numbered craft (or undocumented), however, we are destined to find the confirmed yachtsmen, the men who, year after year, look to their boats for their outdoor recreation and who, because they are typical boatmen, carry out or supervise the operation of their craft themselves and hence, with the passing years, increase in boating judgment and boating sagacity. A study of the growth of this group of yachtsmen, as shown by the successive increases in the numbered motor boats, will, therefore, furnish a trustworthy picture of the sport's ex-

(Continued on page 110)



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## Keeping Track of the Boats

(Continued from page 108)

during progress. In such a light the facts disclosed by the enforcement of the numbering Act of June 7, 1918 are of interest.

On June 30, 1919 (the government's fiscal year ends on June 30) a total of 91,779 motor boats had been registered with the Federal government in obedience to the requirements of the act. A half year later (December 31, 1919) the numbered craft had increased by 19,012 vessels, so that a new total of 110,791 motor boats was reached.

On December 31, 1920, exactly one year later, the number of vessels thus registered was 130,826, an increase of 20,035 boats for the twelve month period. Again looking at the figures compiled two years later (December 31, 1922) we discover the total number of numbered motor boats to be 159,701, representing an increase of 28,875 or an annual average increase of 14,437 boats for each of the two years. Within six months (June 30, 1923) to be exact) the total number of such craft in operation in the United States had risen to 166,413. The increase for that half year was 6,712 vessels.

From these figures it is evident that from June 30, 1919 to June 30, 1923, the total number of motor boats numbered under the Act of June 7, 1918 had risen from 91,779 to 166,413. The difference of 74,634 vessels represents an annual increase of approximately 24,878 boats which each year came under the jurisdiction of the act. The recorded annual increases for the first years of the act's enforcement, however, are not absolutely correct indications of the rate at which the numbered craft were being built. As might be expected, it required several years for the enforcement of the act to get into its real swing so that in several years following June 7, 1918 many craft were operated without first procuring official numbers. These several years were sufficient, however, to enable the enforcement of the act to proceed from that time on with regularity and certainty so that the annual increases recorded since 1923 have denoted actual boats placed into service.

Starting again with a total of 166,413 numbered boats in the United States on June 30, 1923, we observe the total rise to 185,559 vessels by the same date one year later. An increase of 19,146 boats was therefore recorded for that year. On June 30, 1925 a further increase of 11,658 vessels is to be noted, bringing into play a new total of 191,217 such craft. On June 30, 1926 there were 203,710 officially numbered motor boats, an increase of 12,493 vessels for the twelve month period. By June 30, 1927 a total of 214,099 such boats was created by a further increase of 10,389 vessels. Finally, on June 30, 1928 (the most recent tabulation and which has just been completed) there were 224,798 numbered motor boats registered with the Federal government representing an increase of some 10,699 vessels for the year.

In the form of a table the annual figures cited above compare as follows:

Date	Total Vessels	Showing increase of	For Periods
June 30, 1919	91,779	19,012	Six months
December 31, 1919	110,791	20,035	Twelve months
December 31, 1920	130,826	28,875	Twenty-four months
December 31, 1922	159,701	6,712	Six months
June 30, 1923	166,413	179,559	Twelve months
June 30, 1924	191,217	11,658	Twelve months
June 30, 1925	203,710	12,493	Twelve months
June 30, 1927	214,099	10,389	Twelve months
June 30, 1928	224,798	10,699	Twelve months

From the table it is apparent that, from the initial tabulation of June 30, 1919 to and including the tabulation made on June 30, 1923, the class of numbered motor boats increased each year by an average of 18,656 vessels. It is true, of course, that hundreds of these boats were, without doubt, craft which had been in operation since before the enactment of the act in 1918, which, for one reason or another, had not been registered with the authorities at their proper time. By 1923, however, there was only a very negligible number of eligible craft which had escaped complying with the numbering requirements, so that from 1923 on the annual increases recorded include practically no vessels which should have been assigned numbers during some preceding year.

It is furthermore apparent that, from June 30, 1923 to June 30, 1928, the numbered motor boats have increased at an average annual rate of 11,677 vessels. In no year since 1923 has less than 10,000 such boats been added to the previously existing total number of numbered craft in use. It is interesting to note that the greatest annual increase within this period took place from June 30, 1923, to June 30, 1924, and resulted in an addition of 13,146 numbered boats to the already vast fleet in operation.

(Continued on page 112)

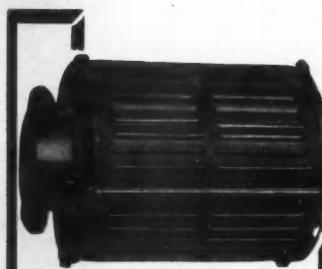
APRIL, 1929

Patents  
Applied  
For

MASTER

HAND PUMP  
Detachable HandleBRONZE GEAR PUMP  
Type A Form Y—Code AyeImproved Model "B" Automatic  
Electric BILGE PUMP

Patents Applied For

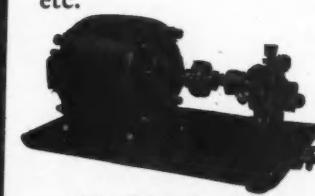


Patents Applied For

OBERDORFER  
BACK FIRE TRAP

Protect your boat and passengers against the danger of fire from backfiring of motor. The Oberdorfer Back Fire Trap renders a backfire harmless so that even gasoline fumes cannot ignite.

This device has been submitted to Underwriters Laboratories and has successfully passed their test requirements—and is manufactured under their re-examination service.



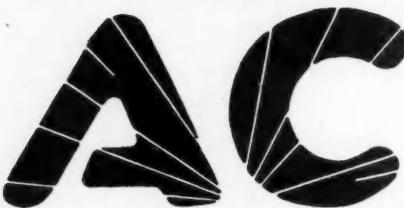
Motor Driven Gear Pumps

Ask for Bulletins on complete  
line of Oberdorfer Pumps.M. L. OBERDORFER  
BRASS CO.2200 Thompson Road,  
Syracuse, N. Y.

# Oberdorfer Pumps



The AC four-unit panel containing a complete set of AC instruments. Three-unit panel also available



## Precision instruments for motor boats

AC instruments for individual mounting



AC Tachometer tells what engine is doing in R. P. M.'s.



AC Thermo Gauge complete with 12-foot capillary tubing



AC Oil Pressure Gauge Comes in three ranges, 0 to 50, to 100 and 120 lbs.



AC Ammeter gives continuous check on rate of generator charge

AC-SPHINX  
Birmingham  
ENGLAND

AC Spark Plug Company  
FLINT, Michigan

AC-TITAN  
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FRANCE

AC INSTRUMENT PANELS    AC TACHOMETERS    AC THERMO GAUGES  
AC AMMETERS    AC OIL PRESSURE GAUGES  
AC AIR PRESSURE GAUGES    AC OIL FILTERS  
© 1929. AC Spark Plug Co.

THE new AC instrument panels, because of their unique beauty of design and finish, lend the final touch to motor boat appointments.

The four-unit panel contains AC Ammeter, AC Tachometer, AC Thermo Gauge and AC Oil Pressure Gauge. There is also a three-unit panel which gives you the AC Tachometer and the choice of two other instruments.

Mounted under a single glass, with indirect lighting, these instruments insure accurate control of your power plant.

AC instruments may also be purchased separately for dash mounting as shown in the individual illustration. All are beautifully finished, accurate and reliable.

Write today for descriptive bulletin and price list. In so doing, give us the name of your nearest dealer.

## Keeping Track of the Boats

(Continued from page 110)

The numbering act was passed just ten years ago last June. On June 30, 1929 the eleventh annual tabulation of figures will be made with the results made known several months later. The first ten of these annual tabulations, however, are sufficient to picture faithfully for us the continued progress which we can expect the class of numbered craft to evidence. Since June 30, 1919 the average annual increase has been approximately 14,768 vessels, the highest twelve-month increase having been the increase of 20,035 vessels shown for the year beginning December 31, 1919 and ending December 31, 1920 and the smallest increase for any one year being the increase of 10,382 boats during the year between June 30, 1926 and June 30, 1927.

To the student of the sport these figures will carry a meaning that is both significant and trustworthy. The figures compiled urge us not to be inordinately influenced by the present precipitant rush toward universal popularity being made by the outboard class of craft. They caution us to regard not too highly the relatively small class of documented vessels in our effort to compute the significant and enduring signs which testify fairly to the progress being made by the motor boating sport. And they persuade us to disregard all general and casual observations in any such survey and to substitute for them extracts from official records which show so indisputably the advancement made by that great group of typical motor boat men who are so generally thought of as being inseparably bound up with the class of numbered motor boats.

Everybody affiliated with the motor boating sport to any degree will recognize in the average annual increase of 14,768 vessels in the ranks of the numbered craft sufficient and satisfying evidence that the sport is growing fundamentally in a manner that is as desirable as it is consistent. Regardless, then, of what the future may bring to the class of outboard craft or to the class of documented pleasure vessels, the confirmed motor boating enthusiast can rest assured that the sport is building up for itself, within its larger and changing army of followers, a smaller but more powerful army of devotees who eternally will be motor boating men. It is the persistent and consistent enlargement of this class of motor boating men, as demonstrated by the records set up during the first ten years of the enforcement of the Act of June 7, 1918, that guarantees to the motor boating sport perpetuity and regular growth.

## Siva, An Ultra Modern Yacht

(Continued from page 27)

also a below deck lounge room, or small salon.

The deck house forward is finished in Colonial paneled pine, of a restful color. This deck house is quite large, 11 by 18 feet and is used for a dining salon and deck lounge.

On the after deck there is a semi-circular deck shelter for use in rainy weather. Aft of this the deck is unobstructed for 28 feet, making a comfortable deck space for chairs.

Siva is built on the longitudinal webb frame system, with double planking, the inner planking being laid diagonally. The outer planking, which is all mahogany, is laid in water proof glue so that the whole structure is probably one of the strongest jobs of her size in existence, and is free from vibration and squeaks from working in a seaway.

Considerable space is gained through this construction as no sheathing is necessary; the inside of the planking being finely finished in enamel.

The boat is ultra-modern in its conception and construction and a result has been obtained with no compromises as to speed, comfort or sea quality as she exceeds in these points anything of her size. The Siva is the forerunner of a new type cruiser of marked distinction.

## STOCK CRUISER MANUFACTURER EXPANDS

The Matthews Company of Port Clinton, Ohio, builders of the famous Matthews 38, announce a fifty per cent expansion in their production program. The addition of the 32-foot Speed Cruiser to their well known line of Matthews 38 and 46 Stock Cruisers, together with a great increase in demand for 38s and 46s, has made it necessary that the expansion be immediate.

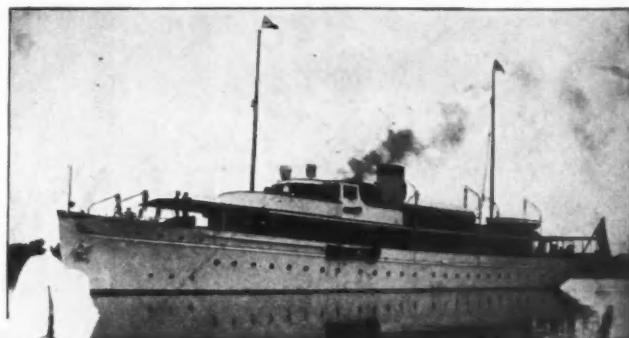
At the closing of the New York Motor Boat Show in January the Matthews Company was sold out of everything they could produce to August 1 with their facilities at that time, and they promptly undertook the job of expansion.

One hundred additional experienced boat builders have been advertised for; this includes carpenters, machinists and finishers.

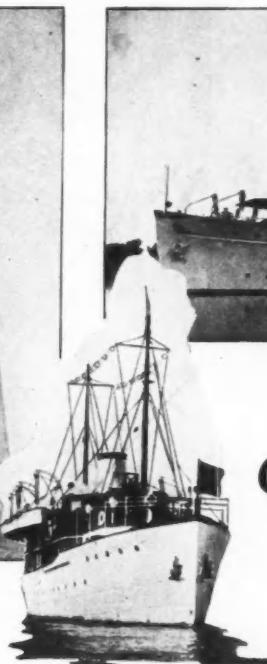
S. J. Matthews, President of the Matthews Company, says it is his opinion that, with the ever increasing popularity of boating, the present industry will have to expand itself to at least ten times its present capacity within the next three years.



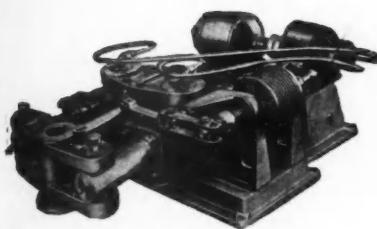
Above—The Aloha, owned by Commodore Arthur Curtis James



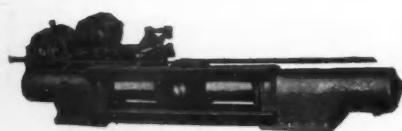
The Memory III, owned by A. E. Fitkin



A right—The Sumar, owned by David C. Whitney



A-E-Co Electro-Hydraulic Steerer—Swivel Type



A-E-Co Electro-Hydraulic Steerer—Sheave Type

On boats that  
set the pace . . .

## A-E-CO ELECTRO-HYDRAULIC STEERERS

Steer the modern way, the sure, safe way . . .  
electro-hydraulically.

Then you will know yachting at its best and  
will get from it the maximum of enjoyment.

Aloha, Sumar, Memory III . . . On boats that  
set the pace for smartness . . . A-E-CO Steerers  
. . . electro-hydraulic.

Compactness, power, economy . . . these are as-  
sured in A-E-CO Steerers by use of the Hele-  
Shaw variable stroke, reversible pump. No  
hydraulic steerer can be better than its pump;  
no pump can be better than the Hele-Shaw.

Write for catalogue Y-29

## American Engineering Company 2419 Aramingo Avenue

Philadelphia, Pa.

Export Department, 50 Church Street, New York

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SMITH-MEEKER ENGINEERING CO.  
125 Liberty Street  
New York City

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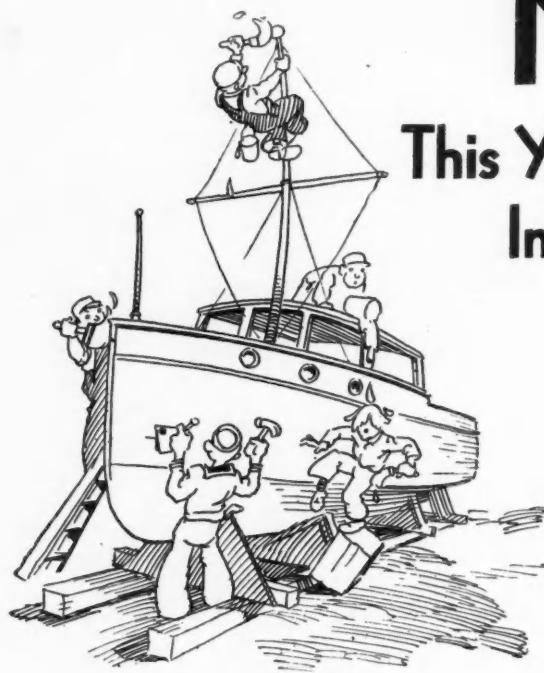
VICTOR E. DALTON, INC., 542 S. Figueroa Street, Los Angeles, Calif.

Texas Distributor:

PEDEN IRON & STEEL CO., Houston, Texas.

# New Life—

This Year  
Install a



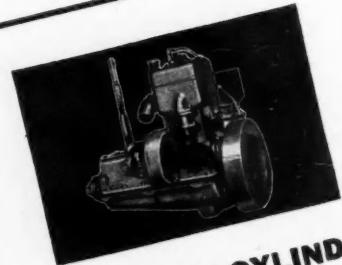
The Universal Motor Company, this year, offers a particularly wide selection to the man who has grown to love his boat, but who is about cussed out where his motor is concerned.

For Universals are designed to save room, save in first cost, save in operating costs, put peppy power in your boat, and serve you with uncommon faithfulness and lack of trouble.

And there's a Universal for virtually every boat under sixty-five feet.

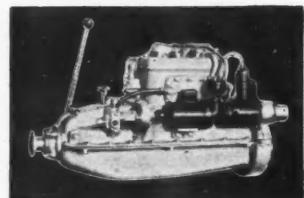
UNIVERSAL MOTOR COMPANY  
Dept. MBG-4

NOT CONNECTED WITH ANY OTHER FIRM USING THE NAME "UNIVERSAL"



THE SINGLE CYLINDER  
6-8 H. P.

For Dories, Launches, Work  
Boats, Fishing Boats, as  
auxiliary for Sailing Craft,  
or any other boat requiring  
up to 8 H. P. in a depend-  
able power plant at exceed-  
ingly low cost.



THE FLEXIFOUR  
10-15 H. P.

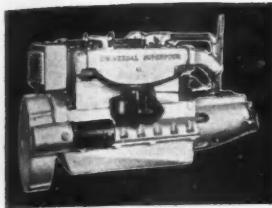
The direct drive models ideal for tenders, small runabouts, launches, dories, sea skiffs, fishing boats, auxiliary for sailing craft, and other boats requiring De Luxe performance in a power plant up to 15 h. p.

The reduction drive model is suitable for the heavier type open boats and cruisers of about 24' to 32' to drive from 7 to 11 miles per hour. 18" x 18" propellers for 10 to 11 mile boats, and 20" x 16" propellers for 7 to 10 mile boats.

UNIVERSAL  
ALL MOTORS WITH BOTH DIRECTIONS

Advertising index will be found on 3rd last page

# in the Old Hull



## THE SUPER-FOUR

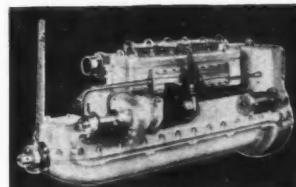
35-50 H. P.

The Model GLR 50 H. P. for 151 class hydroplanes—speed above 40 m. p. h.

The Model GLH 45 H. P. ideal for fast runabout 16' to 22'—speed above 30 m. p. h. for the small faster models.

The Model GLS 35 H. P. ideal for small runabouts to drive up to 25 m. p. h., small cruisers up to 13 m. p. h.—a good all around model for most any purpose, requiring up to 35 H. P.

The reduction drive Super-Four models have established entirely new standards for economy, speed, and general all around performance in cruisers, work boats, tug boats, and other heavy craft, requiring large slow turning propellers— $2\frac{1}{4}$  to 1 ratio turns 22" x 18" three blade propeller 750 to 850 R. P. M.



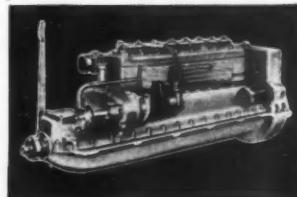
## THE UNIVERSAL SIX

75-85 H. P.

The Model Six-85 ideal for fast runabouts 18' to 22'—speed above 35 m. p. h. in the faster smaller models.

The Model Six-75 ideal for medium runabouts, to drive 25 to 30 m. p. h., cruisers, sea skiffs, fast fishing boats, and other craft requiring high speed as well as ability to troll.

The Six Cylinder reduction drive models are rapidly replacing large, expensive direct drive motors in cruisers, work boats, tug boats, fishing boats, and others requiring very large propellers. 20 m. p. h. in a 33' V bottom cruiser—12 m. p. h. in a heavy 44' cruiser are two examples of performance. 18" x 16" propeller with  $1\frac{3}{4}$  to 1 Reduction Ratio for light cruiser for 16 to 20 m. p. h.; 20" x 24" with  $2\frac{1}{4}$  to 1 Reduction Ratio for light, easy driving cruisers for 16 to 20 m. p. h.; 24" x 22" for 14 to 16 mile cruiser and 26" x 20" for 10 to 12 mile boats or for towing.



## THE UNIVERSAL EIGHT

110 H. P.

The direct drive model is ideal for fast runabouts 20' to 26'—speed to 40 m. p. h. in the smaller faster type. Owners of 26' to 30' Express cruisers, sea skiff, and other crafts designed to drive 16 to 20 m. p. h. will find the Eight a superb power plant.

The Eight Reduction drive  $1\frac{3}{4}$  to 1 ratio is ideal for 28' to 35' sedan runabouts, express cruisers, and other boats designed to drive up to 25 m.p.h.; 18" x 24" propeller for the runabouts and 18" x 20" or 18" x 22" propeller for the cruisers.

The  $2\frac{1}{4}$  to 1 reduction drive models are ideal for larger, harder driving boats requiring 22" to 28" diameter propellers. It saves tremendously in first cost, operating costs, saves space, and the great flexibility makes possible unusual maneuvering ability.



**Marine MOTORS**  
DIRECT AND REDUCTION DRIVE

Mention MOTOR BOATING, 57th St. at Eighth Ave., New York

## We're Going Overboard Soon

(Continued from page 23)

quire dry cleaning by professional cleaners and the carpets could probably stand a thorough vacuum cleaning.

In the several weeks which have elapsed while the interior was being restored the weather has improved to such an extent that the cover over the boat can be safely removed and the boat left without protection. If a water supply is available, a washing down with a hose and soap water will remove most of the surface dirt. After this has dried the seams in the hull should be carefully inspected and any which have opened should be repainted and later smoothed off with sandpaper. A good material for this purpose is a mixture of putty, white lead and varnish all stirred together to a soft consistency where it can be easily forced into the seams. This has the advantage of drying into a very hard compound which will stay in the joint. As far as the outside of the boat's hull is concerned there are several ways of doing this. The poorest way is to simply apply several new coats of paint over the hull in whatever condition it may be, covering bruises, dirt, and grime, impartially with new paint. The better way provides for washing down the hull, then going over it carefully with sandpaper until it is perfectly smooth, after which the first coat of new paint is applied. When this has set from one week to the next, a second coat can be applied after the hull has again been sanded smooth and this process is repeated still a third time before a first class job results. It is ever so much better to apply several coats of thin paint rather than one thick coat of heavy paint.

The bottom of the boat may be considered as a part of the outside of the hull, although it is painted and finished with materials of an entirely different nature. The seams in a boat's bottom are more likely to require attention than those above the water line. The caulking material in them may have become water soaked and deteriorated which will call for new caulking in the joints as necessary. This is a delicate operation for an inexperienced man to undertake. The mistake usually made is to drive into the seam such a large mass of caulking cotton as to force the planks away from the frames and loosen the fastenings. If there is any doubt as to the ability to do this properly, it should be entrusted into the hands of an experienced caulk who will do the job properly. Seams which have been recaulked are treated in the same manner as they would be on a new boat and are given a priming coat of paint and then filled with a good seam compound or the putty mixture described above. All of the seams which require it should be repainted and then smoothed down with sufficient sandpaper. This sandpapering operation is perhaps one of the most disagreeable of all those involved. In the first place the bottom is painted with the prepared copper bottom paints usually of red or brown color. When this is attacked with a wire brush or sandpaper considerable dust is produced which must of necessity filter down onto the face and hands of the sandpaperer who must lie on his back beneath the boat and cannot very well escape the dust. There are several opinions as to the proper way of applying bottom paint to a boat. One method is to paint them in the usual way when the rest of the work is being done and allow the paint to dry thoroughly before the boat is launched. The other method claims that the dry paint loses some of its protective properties and volatile oils by being allowed to dry in the air. They claim that the boat should be launched as soon after the last coat of bottom paint has been applied as possible and the paint permitted to set and harden under water. Our experience has shown that some brands of paint will respond to the one method while other brands will do better with the contrary one and actually we do not believe that it makes a particle of difference which method is followed. Bottom paints for boats do not always act in the desired manner under all conditions. We know of cases where high grade bottom paints have been absolute failures in certain waters while those same paints in other waters have kept a boat entirely clean of growth and barnacles for an entire season. It seems that some waterways have more of the plant and animal life which attaches itself to boats than others and where there is sufficient nourishment in the waters for them to thrive, they will adhere firmly to a boat's bottom irrespective of the protective copper paint with its poison ingredients. The answer to the problem would seem to be that if your boat habitually fouls its bottom, move it to another body of water and your troubles will probably cease.

An important detail of the finish of the boat is the bright work. This is all of the material which is finished in varnish and adds greatly to the appearance of the boat. Unfortunately the weather gets into the varnish work unless it is closely watched and it will generally be found advisable to go over all bright work every five or six weeks during the course of the summer in order to keep the varnish coat impervious to moisture and elastic. Varnish which is neglected for long periods will get

(Continued on page 118)

**Plan the new season ... NOW**

**\$10**

Last year, in the middle of the season, you thought of many improvements you wanted to make on your boat before you put it into commission this year.

Now is the time to do some careful planning. List everything you want to do, and mark the "necessary" items for immediate attention.

Among the "necessary" items, list the Boyce MotoMeter, marine type . . . the temperature indicator that brings directly to you the moment-by-moment story of engine performance.

Do this for your peace of mind this season . . . so that you may know the instant your engine starts to overheat and bearings are in danger. This will save repair bills.

Get the facts in the booklet "When the Whole Bay is Your Radiator"—sent free on request.

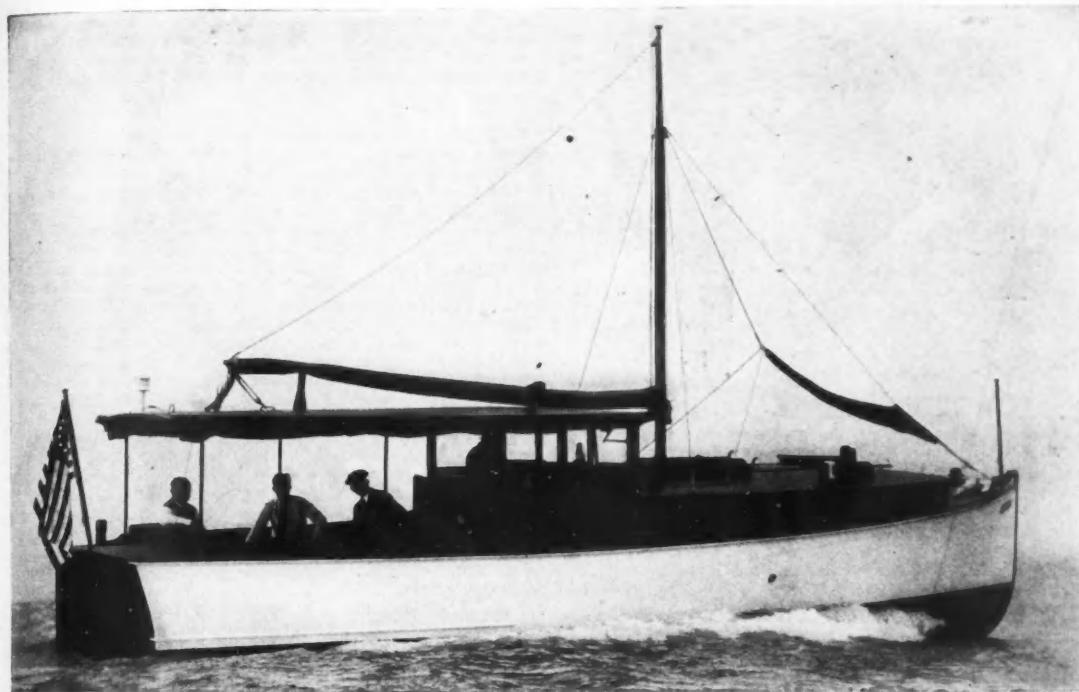
**THE MOTOMETER CO., Inc.**  
5 Wilbur Avenue,  
Long Island City, N. Y.  
The MotoMeter Co. of Canada, Ltd.,  
Hamilton, Ont.

**BOYCE**  
**MOTOMETER**  
TRADE MARK REG. U. S. PAT. OFFICE

Your engine deserves MotoMeter Self-adjusting Spark Plugs—with the small gap for easy starting automatically changing to a wide gap for economical running. Ask your dealer.

APRIL, 1929

## GREATEST CRUISER VALUE OF ALL TIME



## MOST POPULAR OF ALL THE "FAMOUS FAMILY" MATTHEWS "38"

*Compare it as you will—for seaworthiness—spacious accommodations—thoughtful arrangement—convenience—genuine all-around serviceability—you will find no other boat offering so much dollar-for-dollar value as the Matthews "38" Single Cabin Cruiser for 1929.*

The always greater value of the Matthews "38" Single Cabin Cruiser is climaxed by the 1929 model of this justly famed craft, which provides increased speed, comfort and luxury with traditional ability and seaworthiness—and at a price which places it in a value class of its own. Such value as is built into this boat is made possible, as a matter of fact, only by the demand of the boating world and by the quantity production methods put into effect by Matthews in order to meet the requirements of the average cruiser owner. Year by year, as the "38" Single Cabin has demonstrated its steadily increasing popularity, Matthews has been enabled to develop constant improvements and betterments. These have now reached a point where the sheer dollar-for-dollar merit of this newest "38" Single Cabin Cruiser must command the careful consideration of every thoughtful boat buyer.



*Looking forward in the spacious cabin of the*

**"Matthews**  
**38**  
SINGLE CABIN CRUISER

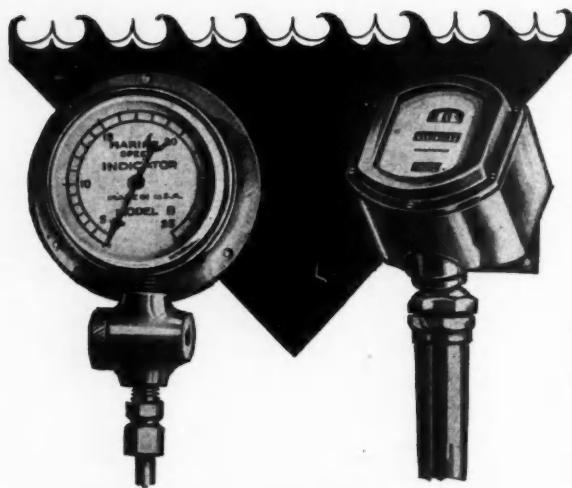
"A home afloat" . . . sums up the Matthews "38" Single Cabin Cruiser. Four individual berths—with cockpit seats convertible into comfortable berths if required. . . . The galley is ample (some say more) for preparing homelike meals for six to eight people. . . . Mahogany buffet, dish racks in galley, mahogany dresser with spacious drawers, full-length clothes locker, and complete toilet room are much appreciated by those who like home comforts on the extended cruise. . . . With 125 h.p. Kermath engine as standard equipment a maximum speed of 17 m.p.h. is attained and a comfortable cruising speed of 15 m.p.h.—and larger engines and higher speeds are also available. . . . Only a hint can be given here of the unusual characteristics and specifications of the boat. Write for folder with complete specifications, interior views and detailed arrangement plan.

**THE MATTHEWS COMPANY, PORT CLINTON, OHIO**

*Designers and Builders of Boats of Distinction—Since 1890*

**SALES AND SERVICE:** Belle Isle Boat and Engine Co., 8777 E. Jefferson Ave., Detroit, Mich.—Bruns, Kimball & Co., Cor. Fifth Ave. and 15th St., New York City  
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Robert V. Staats, Inc., 3600 Wilshire Blvd., Los Angeles—J. A. Scarlett, 436 East 2nd St., Cincinnati, Ohio.

Mention MOTOR BOATING, 57th St. at Eighth Ave., New York



## Here's a Reliable Speedometer for Your Boat

THIS instrument placed anywhere on your boat will give you at a glance your speed in miles, and if you wish it your trip mileage and total mileage. Accurate within 2% this speed indicator will help you navigate by chart and compass. It will aid you in fog, and will make it easy to keep your boat at her best running speed.

These devices have been fully tested and proved to be dependable gauges. They are giving valuable service to owners of small and large boats of all types.

Passage of boat through the water creates the pressure which is indicated on the dials. There is no connection with the motive power, nor is towage of auxiliary apparatus required.

### National Marine Speed Indicator.

4 Models, \$25.00, \$30.00, \$35.00, \$40.00, for speeds up to 15, 25, 35, 60 M. P. H.

### National Marine Speed Indicator and Log.

2 Models, \$100.00 and \$120.00, for speeds up to 35 and 60 M. P. H., and trip as well as total mileage.



Write today for our catalog

THE NATIONAL LOCK WASHER COMPANY  
Newark, New Jersey, U. S. A.

2290

## We're Going Overboard Soon

(Continued from page 116)

brittle and crack and once the moisture gets underneath it, the woodwork will stain and change its color. The most frequently used materials for bright finish are oak and mahogany and in some cases teak. Oak is the most difficult to keep clean and bright by reason of the fact that the wood itself contains a form of tannin which will discolor it very quickly in the presence of moisture. Oak will turn black in streaks when allowed to get wet without protection and is then most difficult to restore. There is a choice in method and the one most frequently used is to scrape the entire surfaces with cabinet scrapers which will in effect peel off the exposed layer of wood and bring to the surface a new layer. This work is quite arduous and should not be undertaken by inexpert hands. A somewhat simpler method is the use of oxalic acid as a bleaching agent which does the same work but in a less laborious way. Crystals of oxalic acid are dissolved in warm water until a saturated solution is secured. That is, when no more can be dissolved in the solution. The wood must be free of varnish which condition can be secured by the use of varnish removers, after which it is painted with the acid solution which is allowed to dry on the wood. If all stains are not removed on the first application, a second one will generally produce the desired results. When using oxalic acid in water it is customary to wash down the bleached wood with vinegar which will have the effect of neutralizing the acid condition. These crystals can also be dissolved in alcohol and used in exactly the same way. In this case it does not seem to be necessary to use a neutralizing agent after the acid. It will be found that the grain of the wood has been raised by the use of this acid and it will require a thorough sandpapering to smooth it down in a proper way. After this the successive coats of varnish can be applied with an intermediate sandpapering between each coat. On work which has been cleaned down completely, it will require as many as four coats of varnish before a surface of proper depth is built up.

Mahogany and teak are finished in much the same way as oak except that the bleaching agent is not considered necessary since the woods are darker in color and in practically all cases stained to produce a uniform tone. Frequently mahogany is finished with only a very slight trace of stain and when this is done, the color is very much lighter than the tone usually associated with mahogany. The color which is applied to furniture sold as mahogany is vastly different from the natural color of this fine wood.

Decks of boats are frequently finished with a canvas covering and in better boats are finished with varnish. The varnished deck is usually laid in white pine with seams payed with a marine glue in black or other contrasting color. Where mahogany is used as in the case of fine runabouts, the joint between the seams is filled with a white compound which makes a most effective color scheme when varnished. Those boats which have canvas covered decks most often use one of the several tones of buff or green with which to paint this canvas. White paint has been used for this also, but would seem to be difficult to keep clean. A very excellent finish for canvas is several coats of deck paint which are then sanded smooth and followed by several coats of varnish. This forms an enamel like surface over the color of the deck paint and is a surface which is easily kept clean and is also very durable.

If the work has been carefully and diligently done up to this point the boat should be almost ready for launching and will require only such trimming jobs as varnishing the flag poles and mast and going over the wire rigging with aluminum bronze and a final polishing of the brass work. Many brass objects on the boat which are not subjected to the friction of lines can be polished well and then cleaned down with alcohol. After this has been done a coat of some of the lacquers made for this particular purpose will keep the brass work bright and clean for long periods of time without the constant necessity of repolishing every day. Where a boat is maintained without a crew, this is an item worth considering. In this connection the new chromium plate finish has proven very durable and practical and is being extensively used on many of the newer boats. There are also on the market all sorts of boat fittings made in nickel bronze alloys which have an appearance similar to nickel plate but which will not wear down since the entire casting is of the same color metal. Many of these are claimed to be non-tarnishing and will stay bright and clean with requiring frequent polishing.

Smaller boats in the runabout class can be treated in much the same way as described for the larger ones, and since they are practically all finished bright they will require nothing more serious than a good cleaning down and refinishing with a sufficient number of varnish coats to produce the desired result. The bottom finish on boats of this kind is also given a little more care and attention than is usual or necessary in the case of

(Continued on page 124)



# Elco Boating

PUBLISHED MONTH TO MONTH BY THE ELCO WORKS, BAYONNE, N. J. . . . APRIL, 1929

## The Elco Thirty-Eight



Why not plan to spend your summer on a "Home Afloat" like this?

### The Elco Thirty-Eight

A LITTLE over a year ago the Elco Thirty-Eight was developed in answer to the ever-increasing demand for an owner-operated boat which had the manifest advantage of two entirely separate and complete cabins.

Following our usual practice, a boat was designed in the best way that many years' experience could show us, and then a "trial home" was built and put to the test of actual service. There were many little detail changes made before the boats went into production. The result was a cruiser as nearly perfect as the could be for her size and type.

The Elco Thirty-Eight is not a "cheap" boat in any sense. She was well built in the first place and then as low a price set as was consistent with the product. Further, she was designed and engineered as a unit, no attempt being made to take a given hull and force it to serve for many layouts and to be driven by any one of a number of more or less suitable engines. The Elco engine is just as much an integral part of the Elco Thirty-Eight as the keel. In addition the owner is not faced with divided responsibility when service is required. With Elco

there is but one concern which assumes full responsibility for hull, engine and engine installation, and in case of trouble a single telephone call is all that is needed to procure adequate and experienced service.

In appearance the Elco Thirty-Eight was designed to appeal to the eye of the experienced and critical yachtsman, and is eminently successful in so doing. It is unusual that a boat of 38 feet overall length and great accommodations should escape from the clumsy and boxy appearance from which many boats of that size suffer. After all, the average man, even though a novice, takes a justifiable pride in the looks of his boat and prefers admiring glances from those who know boats, to disparaging comment from the rest of the fleet.

Orders for two special Veedettes, thirty-six feet long, have been placed. One will have a special engine of 290 H.P. and the other a motor of 100 H.P. The higher powered boat will have a speed in excess of 30 miles an hour. The boats resemble the standard Veedette in appearance but one will be finished in varnished mahogany and the other in black enamel.

### The Success of the Veedette

IT seems only a few weeks ago when the first issue of Elco Boating carried the preliminary announcement of the new Elco Veedette. The New York and Boston Motor Boat Shows have come and gone and now we are happy to contemplate the Veedette as one of the most successful models ever offered by any builder. Answering a very definite demand, she has been received with the greatest enthusiasm by the public, as evidenced by a large and steadily growing pile of Veedette contracts. Our only problem now is to build boats fast enough to meet the demand.

The Navy watchwords "Speed, Dash and Accuracy" well express the ideas back of the Veedette. Speed in her flight over the water, Dash in her sporty lines and handsome appearance, and Accuracy in the care with which every detail of design and construction has been worked out.

While this boat has many entirely new features and as a whole represents a distinct advance in motor boat design, still the fundamentals of her construction have been proven in the hard test of service. Some of the old Veedettes have stood up in a daily grind to which no yachtsman would think of subjecting his boat. As an example, the Army Engineer Corps has used an old Veedette on Newark Bay winter and summer for about five years. She is slammed against tugs and barges, battered by driftwood and pushed through ice in unmerciful fashion, for her career is one of service and not of pleasure and she must stand the gaff or perish. With such a history behind it the owner of a Veedette can have a justifiable confidence in his boat.

### A Real Testimonial

"I WISH to congratulate you on the splendid seagoing qualities of our new Elco Fifty 'DAWN II' which received its trials by salt water in a brisk northeaster in the Gulf Stream today. We ran from Fort Lauderdale to Lake Worth in less than three hours with plenty of mountain climbing, taking no solid water aboard. The motors functioned perfectly." ROBERT W. ORRELL

The above telegram was recently received from Florida. No comment is needed. It is of interest that Mr. Orrell bought his Elco by telephone from Florida after inspecting a sister ship which came into port when he happened to be on the dock.

There are under construction three special 56-foot Elco Motor Yachts for three gentlemen who have been former Elco owners. In one case this will be the owner's second Elco, in another his fourth, and in the third case the new boat will be the sixth Elco Motor Boat in as many years.

# "When the Blues are running . . ."



*The owners of the Petrel\* are enthusiastic fishermen, and during the season both trolling and still-fishing are a source of keen enjoyment*

THE summer life of Mr. and Mrs. Clinton Mears\* centers very definitely in their Elco Cruisette. A few steps from the door of their Bayshore home it lies expectantly at anchor, ready at a moment's notice to carry them out into the bay—for a week-end cruise—for a swim in the surf off Fire Island—most often for fishing in the Inlet....

Bait and lines stowed deftly away—the icebox critically inspected and restocked—all hands joyfully aboard. Then swiftly across to the Inlet where the bluefish are running—the weaks, the fluke, or the mackerel. Now the motor throttled down to a gentle purring . . . the lines cast . . . the Petrel

sympathetically idling through long, happy hours.

All during the summer months Mr. and Mrs. Mears find it pleasant to use the Petrel extensively for transportation. Visits to friends in Islip and Sayville—trips to Belleport, to Greenport on the Peconic Bay, to Shelter Island, and to Block Island. No other way of traveling is so cool and so comfortable, Mrs. Mears says. And certainly, she adds, in spite of city days spent in taxing professional duties, Mr. Mears' hours on the water keep him

amazingly fit throughout the summer.

The history of every Elco boat is as thrillingly individual as the man who owns it. For each owner finds in the opportunity for independent voyaging constant stimulation and a challenge, and each responds in a characteristic way.

At Port Elco, where we will be glad to receive you at any time, you can get right aboard a Cruisette (or any other model on display) and make your own tour of inspection. Or write to Port Elco for Catalog MBG.

PORT ELCO (permanent exhibit), 247 Park Avenue, at 46th Street, New York. Distributors in Boston, Detroit, Los Angeles and Miami. Plant and Marine Basin, Elco Works, Bayonne, N. J.

The Elco Fleet: Twenty-Six, \$2,975; Veedette, \$4,875; Cruisette, \$5,950; Thirty-Eight, \$10,750; Forty-Two, \$16,500; Fifty, \$25,500.

\*Although this series of advertisements recounts bona fide experiences of Elco owners, the names used are fictitious.

**Elco**  
MOTOR BOATS



The roomiest Two-Cabin Cruiser on the market—Elco Thirty-Eight

### Buy Now—for Spring Delivery!

**W**HEN can I get delivery?" This is the pressing question which every prospective owner asks at this season of the year. And all too often he is disappointed by an answer which advances his actual ownership well into the summer. If in spite of every effort on the part of the boat industry, the purchaser delays his final decision too long, spring delivery is manifestly impossible. In theory, the Elco Works carry all models in stock at all times. In practice, however, our production is limited and, in the Spring, sales run way ahead of construction. Therefore, our earnest plea: if you want a boat for this season, place your order immediately or be prepared to wait your turn for delivery.

The story on limited numbers of boats available applies equally to used boats as to new ones. There are still a number of good used Elco boats available which are offered for sale overboard and in commission, reconditioned and guaranteed. But the selection is rapidly narrowing and if you wish to own an Elco at a substantial reduction, we would emphasize again "Buy your boat now!"

### Spring Outfitting

The call of spring is in the air and the nearly two hundred Elco boats of other years which have been hibernating during the winter at Bayonne are being groomed for the season's use. Elco Storage and Overhaul Service is taken advantage of by many owners far from New York, as well as in home waters. The freedom from annoying details and the assurance that their boats are in the best possible hands are powerful inducements which bring boats many hundreds of miles to be stored at the plant where they came into existence.

The handsome Elco 62-foot Motor Yacht, although no longer a stock model, is available on order, and we now have one under construction for a Great South Bay yachtsman who has previously owned a Cruisette and an Elco Fifty. She will be powered with two 125 H.P. Elco engines.

Mr. Robert Hibbard, prominent New York lawyer, and Secretary of the Department of Plant and Structures of the City of New York, has placed an order for an Elco 42-foot cruiser. Mr. Hibbard is an old time yachting enthusiast, having spent his summers afloat for many years.

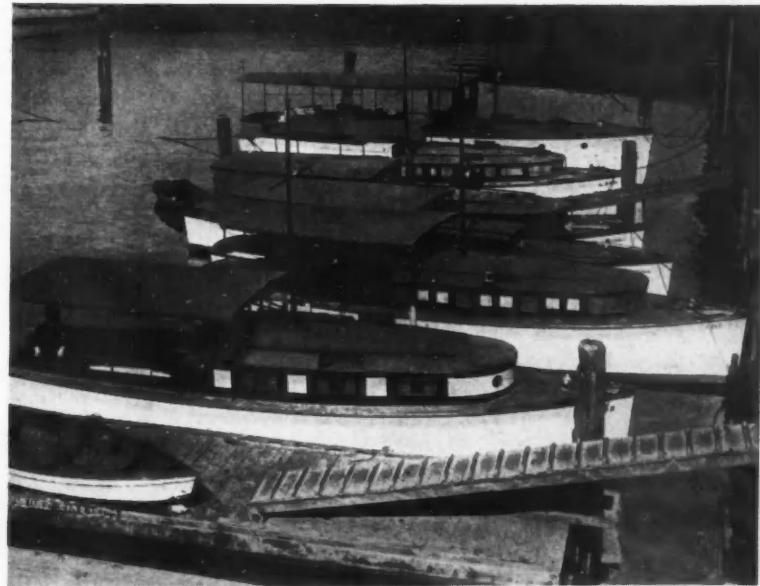
### Winter Cruising in a Cruisette

**T**HE early part of February is not generally considered ideal boating weather in the vicinity of New York. However, the adverse season did not deter Mr. and Mrs. Carter B. Burnett from sailing for Florida in a 34-ft. Elco Cruisette on February 14th from Bayonne, N. J. A telegram received from Norfolk reads "Arrived today after fine run. Cruisette came through perfectly as expected. Ice delayed one day."

The run was made outside down the coast, the canals being closed for the winter. Cruisettes have made this trip in winter before and Mr. Burnett has made the Florida-New York run many times, both winter and summer, in Elco boats. What to many must seem a foolhardy voyage was therefore merely another cruise to him with never a question as to the boat's ability to come through successfully. Mrs. Burnett has been his shipmate on many cruises and by now must be a "salty and seagoing" lady.

Mr. Burnett is a well known yachtsman who recently severed a three-year connection with The Elco Works to open a wet storage basin at Fort Lauderdale, Florida. His associate is Mr. C. R. Breckinridge, also formerly connected with The Elco Works. Yacht owners, particularly Elco owners, will find themselves among fellow yachtsmen and friends at their establishment.

An order for an Elco 42-foot cruiser with special modification has been placed by a well-known Chicago yachtsman, who is also identified with the Transcontinental Air Transport. The boat will be remarkably complete in every detail and will be used at Les Cheneaux on Mackinac Strait, where his summer home is located.



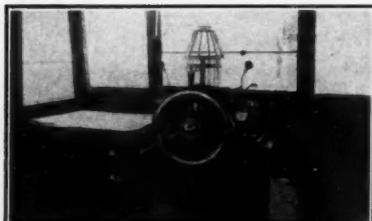
Partial view of Elco cruisers in Elco Basin at Bayonne, N. J.

# Beautiful, Efficient, Seaworthy

## A Thoroughly Practical Forty-Two Footer



Deck House looking aft—note comfortable seating arrangements



Deck House—showing convenient controls at steering wheel



BEAUTIFUL as any cruiser that ever took the water is the Elco Forty-Two. It is unqualifiedly a practical, efficient, and thoroughly satisfactory craft.

There are no short cuts in building Elcos—no compromise with safety made to hasten production. Every Elco is the product of *experience* design, and honestly built, with all we've learned in thirty-six years of standardized cruiser construction built into every boat.

This forty-two footer is ideal for family use, or entertaining. Two spacious cabins with comfortable berths for four persons. Extra sleeping accommodations in deck house. Two separate and complete lavatories. Quarters for a paid hand if you want one. Completely equipped galley.

Spacious after deck with room for four or five chairs, and comfortable deck house seating eight to ten persons, make the Forty-Two ideal for day trips as well as for cruising. The deck house is fitted with sliding plate glass windows which can be adjusted to give the effect of an open deck, or closed to give complete protection in bad weather.

The specially designed Elco six-cylinder engine gives a speed of 12 to 13 miles per hour, with more speed per horsepower and more miles per gallon than in any similar sized boat, due to Elco's proven lines.

If you want beauty, speed, and comfort; if safety and seaworthiness are important to you; if you want to spend your money wisely—come now and see the Elco 1929 fleet on display at Port Elco, Park Avenue at 46th Street, New York. Or send for Catalog MBG.

### The Elco Fleet

Twenty-Six . . .	\$2,975
Veedette . . .	4,875
Cruisette . . .	5,950
Thirty-Eight . . .	10,750
Forty-Two . . .	16,500
Fifty . . .	25,500

**Elco**  
TRADE MARK  
MOTOR BOATS

PORT ELCO  
(Permanent Exhibit)

247 Park Avenue, 4  
46th Street, New York

Plant and Marine Bldg.  
The Elco Works, Bayonne,  
N. J.

Distributors in BOSTON—New England Marine Sales Co., 882 Commonwealth Avenue ~ CHICAGO—Henry C. Grebe & Co., 400 North Michigan Avenue  
LOS ANGELES—Yacht & Motor Sales Corp., Wilmington, Cal. ~ MIAMI—L. O. Blatchford, Royal Palm Dock



## Loening lauds Lionoil after "triple test"

o Forty-  
satisfac-  
h safety  
nced de-  
years of  
Two spa-  
sleeping  
vatories.  
d gallery.  
f comfortable  
ideal for  
a sliding  
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of 12 to  
miles per  
orthiness  
y-come  
Avenue

ELCO  
Exhibit  
avenue, 4  
New York  
New York  
J.

Lionoil red oxide primer measures up to the triple test of sea, land and air duty and is standard on all Loening Cabin Amphibians. This undercoat, followed by Berryloid, the high-luster lacquer, gives these ships a waterproof and handsome protective coating that lasts.

"Now, after a year's service we are glad to report entire satisfaction with the way this finish has stood up in service," writes A. P. Loening, vice-president of the Keystone Aircraft Corporation. "As you know, 'service' with our Amphibian plane includes frequent baths in salt spray as well as the usual wear and tear of land operation".

Boat builders have found no other finish comparable to Lionoil for waterproofing metal or wood hulls. Write for our new booklet that gives you all the facts about this remarkable product.

Address Marine  
Department for  
Information, Prices  
and Samples.

**BERRY BROTHERS**  
Varnishes Enamels and Lacquers  
*Detroit, Michigan*

*Walkerville, Ont.*

Member National  
Association Engine  
& Boat Manufac-  
turers, Inc.



# AMERICAN BOSCH "U" type magneto

A new magneto—the Type U—has been developed by American Bosch Engineers. It is powerful, lighter in weight, more compact; structurally better than any magneto heretofore produced.

Every time-tested improvement has been incorporated in its design to insure uninterrupted service. The American Bosch Type U Magneto is sealed against all dust, dirt, moisture and oil. It cannot be overoiled and the bearings are lubricated and sealed at the factory.

This new magneto is announced only after having been subjected to field tests, laboratory breakdown tests and customer service tests of the severest nature. It has so many improvements and advantages that it warrants your inspection and careful examination if you want the advantages of trouble-proof magneto operation. Write for details of the new U Type—the outstanding achievement in magneto engineering and operating value.

## American Bosch Magneto Corporation

Springfield

Massachusetts

Branches: New York Chicago San Francisco

## We're Going Overboard Soon

(Continued from page 118)

cruising boats. A popular color for the bottom is a special green bottom paint which is finished off with a boot top or stripe of white enamel just above the water line. A word or two in regard to marking the water line may not be amiss at this point. It will generally be found that the water line is scribed into the hull with a deep score which denotes the limits of the different colors. If this line is properly marked it is a simple matter to paint the top sides down to this line and also finish the bottom coat at the same line without having the colors overlap or vary from the straight line. In boats which do not have such a clearly defined line it is well to make the hull in this way as the greater ease in painting and the neater appearance of the dividing line between the colors will be well worth the effort. To scribble such a line a light batten is tacked on the hull and the bent tang of a file is drawn along the edge in such a way as to cause a score in the hull, the pressure on the file being regulated to produce a suitable depth.

While the work involved in overhauling an engine and the mechanical equipment of a boat should properly be done before any of the painting is begun, it does not always follow that it is advisable to rip an engine apart merely for the sake of doing this. It will be found that inexpert mechanics often injure an engine more by their attempts to overhaul it than would have been the case had the engine been left untouched. All first class marine engines are built sufficiently rugged and substantial so that they are practically free from internal disorders for many years. The principal service necessary in connection with a relatively recent power plant would call for a grinding of the valves, cleaning of the carbon and a general cleaning up and repainting to protect it from rusting. It is rarely necessary that bearings, either the main or connecting rod, require any attention.

Carbon in the combustion chamber is perhaps the principal item to take care of on any engine which has been in service for any length of time. In fact in fast boats in which the maximum power of the engine is desired it is advisable to clean the carbon at regular intervals not only in the spring but during the summer season also. Most modern engines are arranged with detachable cylinder heads and the operations of removing this is evident from an inspection of the machine. It is always advisable for the mechanic to provide himself with a good set of tools before undertaking work of this kind. Wrenches should be of the socket or open end type and manufacturers of these tools are supplying first class articles of special alloy steels which are light in weight and still have more than sufficient strength to twist the head from a bolt if undue force is applied. It will be found that water connections may have to be disturbed, and where this is necessary, it is a good plan to replace the rubber tubing with new to avoid a failure in this part during the summer. The cylinder head gasket is also something to be treated with care and respect. In order to lift the cylinder head away from the block without injury to the gasket, the best method is to undo the holding down bolts and when all are free, turn the engine over with the starting motor if the battery is available. Otherwise it will have to be done by hand, which is not quite so good. Turning the engine will have a tendency to lift the head and loosen the bonds between it and the block. If this is then carefully lifted away and the gasket gently loosened, it will be found that it can in practically all cases be used again without requiring renewal. It would seem advisable to provide a new gasket every second year as the heavy pressure under which it is placed has a tendency to compress it so tightly as to destroy its elasticity. When removed it should be carefully laid aside in a secure place where it will not be liable to accidental injury. When the head is off the piston tops will be exposed and it will be generally found that they are deeply crusted with a carbon deposit which is thoroughly baked to the metal. This can be removed by an implement such as a small putty knife and the tops of the pistons should be carefully cleaned of all deposit. There are such tools as carbon removing brushes which can be used with the portable electric drill and where a power supply is available, this furnishes an excellent means of polishing the piston heads. The corresponding surface for each piston in the head casting should also be thoroughly cleaned and the spark plugs taken out and replaced if they show any signs of burning or inefficiency. These accessories are so inexpensive that it would be advisable to replace them entirely with new sets each year.

While the head casting is removed from the engine it will be found that there are flakes of rust and scale in the water jacket space on the head as well as in the cylinder block. This should be thoroughly cleaned and can be quite readily accomplished by the use of a stream of water forced through a short length of copper tubing which has been closed down at the nozzle end to produce a powerful jet. This can be poked into the various

(Continued on page 126)

# Here She is



Model 18—The New Sea Sled Outboard Express Cruiser—slips smoothly away with two at 27 miles per hour

## The Hull that fits the Big Outboard Motor

*S*EA SLED—Model 18—“Outboard Express Cruiser”—that’s her!

Model 18 is so sturdy that you can open up one of those whopping big new outboard motors and let her go full tilt into most any summer sea that comes your way. She not only fits the bigger outboards—“like the paper on the wall”—but she’s the only craft that does. She’s made for them, and they for her. She’s got trustworthiness built right into every last plank and frame.

She is finished so well that eight out of ten cheer for her on sight. She has deft shaping of underwater design which lets her slip smoothly away with two at 27 miles an hour with reliable comfort and safety. She’s got the grace of a Venetian gondola.

And with all this, she has a quickly adjustable, weather-proof cabin, demountable at will—sleeping accommodations for two—kitchenette—toilet—auto steering control—electric running lights—automatic bailer. Water tight bulkhead and fuel capacity for a hundred mile cruise.

You have only to study her points to realize that when folks say, “She’s the marvel of the season”—they mean what they say.

*P. S. This is the finest outfit in sight for any dealers who can get enough powerful motors to equip the Outboard Express Cruisers.*

TRADE-MARK REG. **SEA SLED** U. S. PAT. OFFICE

**THE SEA SLED CORPORATION**

*Sole Licensee under Hickman U. S. Patents*

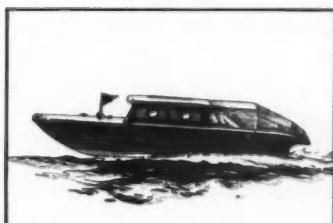
226-228 Fourth Ave. at 19th St., New York  
Yards at W. Mystic and Groton, Conn.



Cabin slides forward against the windshield



Cabin moved aft, but ready if needed



Curtains in place, completely enclosed for stormy weather



Becomes a high-speed runabout with the cabin removed

*The New Model 18 Sea Sled offers more real boat for the money than any other craft*



# SEA SLED

SPEED . . . WITH COMFORT AND . . . SAFETY

# Our boats built on experience



FOR twelve long years H. F. Johnson, now President and General Manager of Staples Johnson, went down to the sea in ships—the stoutest ever built—Gloucester fishing schooners. Crashing seas bent on the destruction of ships and men taught him the story that now finds expression in every Staples Johnson cruiser—that safety and ruggedness are paramount in boat construction. Men who know boats will tell you that for stoutness of construction our cruisers have no superiors.

**The NEWPORT**, a 34' 25 mile commuter, is priced at \$7,500.

**The MAINE**, a two cabin 40' fast cruiser, at \$10,750.

**The MARBLEHEAD**, a 34' 13 mile standard type cruiser, at \$5,900.

*Write for literature describing  
these boats in detail*

Agents for New England  
New England Service Marine Company  
780 Commonwealth Avenue  
Boston, Mass.

**STAPLES, JOHNSON & CO.**

POOL STREET

BIDDEFORD, MAINE

"IT COSTS LESS TO BUILD GOOD BOATS IN MAINE"

## We're Going Overboard Soon

(Continued from page 124)

openings and directed about so as to wash out any loose rust or scale and clean the casting quite thoroughly. A good plan in doing this is to put on an oilskin coat as a powerful jet of water which is misdirected can spatter over a very large area.

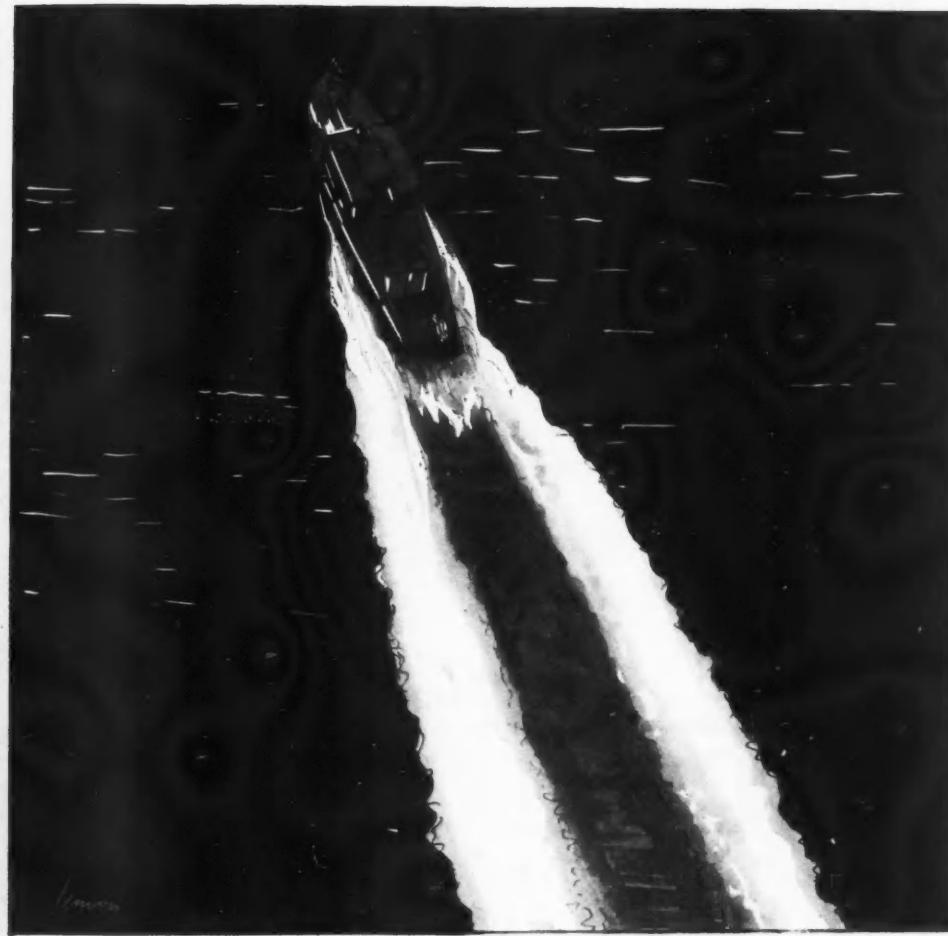
The treatment for the valves will vary somewhat depending on the nature of the engine. The usual form of L or T head machine carries the valves in pockets at the sides of the cylinder. The cam shaft is below and driven by chain or gears from the main shaft and this actuates the valve lifting tappets, opening them for the proper interval and in proper turn. There is very little which can go wrong with this assembly and we would advise leaving it undisturbed. The only injury which might occur would be such as was caused by neglected lubrication and if your engine is suffering from such neglect, it had better go to a good shop for a thorough overhauling. The valves will be found in their several pockets and are secured to their powerful springs by one of several ingenious devices which hold the spring and valve together. An inspection is necessary to determine in which way these can be best removed, and a tool known as a valve lifter is useful in compressing the spring so as to raise it clear of the holding device. Some engine builders seem to be of the opinion that the valves on their particular machines will never require grinding and provide openings of small size and most inaccessibly located. Where this condition exists the mechanic will frequently be called upon to do the most unusual gymnastic exercises in order to be able to reach the valves for the removal of the pins which hold them. After all of the valves have been loosened, they should be marked with the cylinder number and position. Most modern engines have valves on the exhaust side which are larger and heavier than those on the intake side and there will be no difficulty in identifying this type. The purpose of marking them is to insure their going back into the same place from which they were removed. It will be found that the valve stem may have a deposit of carbon, but since the valve is compelled to operate inside the valve guide this carbon layer will be quite thin and may not be present at all. Once again we can call on the electric drill and by securing the valve stem in the drill chuck it can be quickly and thoroughly cleaned by rubbing it with medium steel wool as the drill rotates.

The grinding of the valves is something which calls for skill and patience. If the seats of the valves themselves are badly burned or scored, it indicates that the valve tappet adjustment was incorrect and the valve was not permitted to close down on its seat as intended. Many mechanics make the mistake of adjusting the valve tappet clearance too closely so that when the heat of the engines expands the valve the clearance disappears, and the valve does not seat properly. This permits the hot gases to blow by the valve and once this action is started, it will frequently result in badly burned or warped valves. If this condition is found to exist, the only remedy is to secure new valves for replacement. There are on the market suitable valve seat hones which are made to the correct angle for practically all engines and which can be used in connection with the electric drill to smooth out the valve seat to a condition equal to new. The valves themselves can also be refaced in the motor driven valve grinding tools which are part of every garage equipment today. If the valves are treated in this way they will require only the lightest of grinding when they are refitted in their places. The grinding is performed by applying a light coat of valve grinding compound to the face of the valve and rotating it in its seat by means of a large screw driver or other device depending upon the nature of the slot provided in the valve head for this purpose. The rotation is not continuous in one direction, but back and forth over a small space occasionally lifting it from the seat so that the grinding compound will find a new place to work. When the surface of both the valve and the seat show a smooth gray finish, the valve can be considered tight. This same process must be repeated for each of the valves in the engine and care must be taken that all traces of the valve grinding compound are cleaned away from the valve and seat before the reassembly is made. The valves are replaced in the same position which they had originally and the spring assembly is again returned as before. It will be found that most manufacturers issue instructions as to the clearance to be given between the valve and the tappet. It is quite important that this instruction be followed carefully as too little clearance will lead to burning as mentioned, and too great a clearance will have a tendency to pound out the valve seat and cause a very noisy machine.

The ignition arrangements of engines vary also in that many of them use the electrical energy from storage batteries and distribute this to the various spark plugs by the device known

(Continued on page 130)

## ACROSS THE SOUND FOR A DINNER GUEST



IN GREENWICH a phone rang at 6:20. Oyster Bay gave a sudden invitation—which was accepted out of hand!

Sixty miles separate the two towns on the crowded motor highway. Ten miles part them on the salt Sound water. Yet the guests from Greenwich arrived for dinner at Oyster Bay before seven o'clock!

For a sleek commuting cruiser had sped across the Sound, touched at Greenwich, and was back in Oyster Bay after less than 35 minutes of smooth and speedy travel!

Few men can own such a servant as the boat we speak of—and parenthetically, few men would want to. But the man who owns this commuter—comes to his office in peace and tranquillity—he enjoys the beauty of the

country and the bustle of town without wear and tear upon his time and physique. He can call upon it for a sudden trip across the Sound for dinner guests. He can use it in his moments of leisure. But most of all, it is the conjunction that permits him to live the double life of a man of affairs in the city and a man of peace in the country.

And he does this quickly, quietly and certainly—for his commuter is powered with a Wright Typhoon.

### WRIGHT TYPHOON

*Address inquiries to Marine Engine Division*

**WRIGHT AERONAUTICAL CORPORATION**

Paterson, New Jersey



*It would be difficult to find a smarter design than that offered by the 24 foot Dolphin—Gray "gr" powered to give 35 m. p. h. Price \$3150*



*The 26-foot Dolphin, powered with the Kermath "200", provides the owner with every possible runabout refinement. Speeds, 42 to 44 m. p. h. Price \$4475*



*The 29-foot Dolphin is Sterling or Kermath powered—offers 40 m. p. h. with the utmost riding luxury. Price \$5150*



*The 30-foot Dolphin is a distinguished boat bristling with beauty and upholding the Hacker tradition of speed and grace. Kermath power to give 40 to 42 m. p. h. Price \$5750*

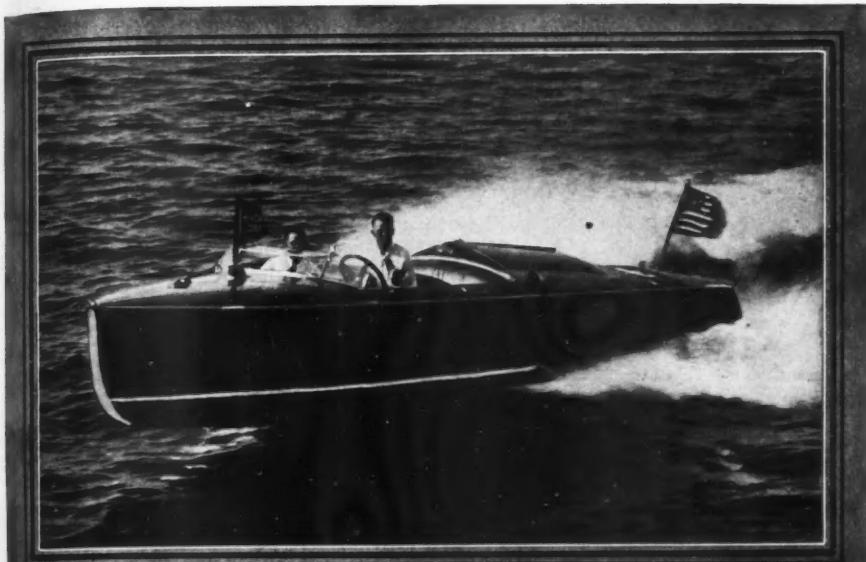
# America's Finest ...

*Hacker offers all models with the special Hacker designed Sedan Top as illustrated.*



# HACKER CRAFT

APRIL, 1929



'Adriatic'—Wooster Lambert's Hackerboat

RN  
N

SYMBOLS	
solid line	Thin Line
solid line	High Margin
solid line	Wide Margin
solid line	Close Margin
solid line	Weak End Margin

The time evidence to the date line on official telephone and day letters, and the time of receipt as determined on arrival on all messages. INTELLIGIBLE TIME.

Received at 47 CASS AVE., MT. CLEMENS, MICH., PHONE 43

226 43 NL COLLECT DUPLICATE WESTPALMBOAT FLO FEB 22  
HACKER BOAT CO  
MT. CLEMENS, MICHLAMBERT JOB CLEANS UP PALMBOAT REGATTA AGAINST FASTEST  
REGATTA FIELD IN FLORIDA STOP SWING TWENTY FOUR PITCH  
TWENTY FIVE HUNDRED STOP TIME TEN MILE FINAL HEAT FOURTEEN  
MINUTES FORTY NINE SECOND STOP ■■■■■ NEARLY  
LAPPED ON MY LAST LAP

HENRY PARKERSON

FEB 23 1929

# America's Fastest

## THE NEW HACKER DOLPHIN SWEEPS THE FIELD AT THE PALM BEACH REGATTA

### On Display

New York, 5th Avenue at 15th Street;  
Boston, 1043 Commonwealth Ave.;  
Philadelphia, 102 South 4th St.; Palm  
Beach, Florida; San Francisco, Rialto  
Bldg.; Detroit, 500 E. Jefferson Ave.;  
Bay Shore, Long Island, 224 E. Main  
Street.

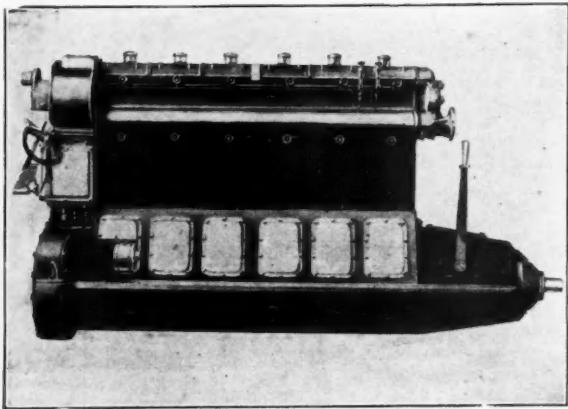
Our new catalog will  
be mailed on request.

Imagine Mr. Wooster Lambert's satisfaction and pride of ownership when he discovers that his new 1929 Hacker Dolphin 26-foot stock runabout, powered with the 200 H. P. Kermath, can out-perform and out-distance everything in its size and horsepower class . . . in ten miles nearly lap the field . . . show a thrilling, consistent average of 41.38 miles per hour. Here is still more stirring evidence that America's Finest Runabouts are also America's Fastest. Hacker design and Hacker workmanship present a significant combination of beauty, speed and staunchness to the distinguished roll of Hackercraft owners.

HACKER BOAT COMPANY  
530 River Road Drive  
MT. CLEMENS, MICH.

# TREIBER DIESELS

**One-Third the Space  
One-Sixth the Weight**



Reverse gear models of Treiber Diesels are built in sizes 65, 100, 150, 225, 300 and 450 H.P. They are started with the aid of an electric motor in exactly the same manner that an automobile engine is started.

To say that Treiber Diesel Engines occupy one-third the space and scale one-sixth the weight of ordinary Diesels is not to make a boastful advertising claim, but to state a fact that is universally admitted to be revolutionizing the Diesel engine industry.

It is equally true that this has been accomplished upon a highly scientific and conservative basis without sacrificing or impairing the fundamentals of strength, durability and dependability.

Why not, therefore, send for the Treiber Bulletins and learn all the interesting details about this progressively different engine? Send for them today, indicating which stock size from 65 to 3,000 H.P. particularly interests you. Larger sizes are specially designed and built to meet practically any horsepower requirement.

**TREIBER  
DIESEL ENGINE CORP.**

Dept. MB Camden, N. J.

## We're Going Overboard Soon

(Continued from page 126)

as a battery distributor. There is nothing about this to be wrong and except for a cleaning and oiling with light oil, nothing needs to be done. The breaker points which will be found in the distributor should be readjusted to the clearance specified and if the points seem to be badly pitted or burned, it may be necessary to replace them. The mere fact that they are not entirely smooth will not call for replacement as the slight ridges and hollows on the points fit together and make a better electrical contact than points which have been filed but in which the faces are not exactly square. The magneto also used on many engines is practically a fool proof device and should be treated in the same way as described for the battery distributor. The breaker points are the only parts which will show signs of wear and can be lightly dressed as required.

The carbureter is also one of the more modern devices which is fool proof. There is nothing about it to get out of adjustment if it is not tampered with. It may happen that a fuel float may need replacing, but this is a rather infrequent difficulty.

While the reverse gear is called upon for heavy duty it is designed for this work and will require only a cleaning and reoiling with a possible slight readjustment of the drive bands to insure slightly better holding. At the other end of the propeller shaft will be found the stuffing box which may be either inboard, outboard, or both. The packing material in these is a prepared flax which is tightly woven into a form of rectangular braid. It is cut diagonally so as to form rings of a proper diameter to go around the propeller shaft and ends of these are placed in the stuffing box to fill it properly. Some lubricant put in with the packing will do no harm. The grub nut and the lock washer should be carefully tightened in place so that they will not come loose in operation. While working at this point it might be advisable to examine the fit of the propeller on the shaft and tighten up the holding down nut and possibly insert a new cotter pin to prevent the nut from coming undone.

After the engine has been entirely reassembled it might be found convenient to wash it down thoroughly with benzene gasoline. This will remove all traces of oil and grease and after this it will be ready for repainting. Depending on the condition it may require one or two coats, and the best material to use for this is some of the prepared engine enamels which are able to withstand the heat of engine operation without burning or breaking down.

Many boats are fitted with a little stop chain at the rudder which is intended for the double purpose of stopping the rudder blade from being swung completely around and in the way of the propeller at such times when the boat is backing up, and also to act as a safeguard against the loss of the blade should an accidental grounding loosen it. It may be found that the links of this chain have worn sufficiently to make replacement advisable and it is a simple matter to install a new piece of the required size.

Having completed all of the many tasks which seem necessary or advisable and restored the boat to first class condition, you are ready to issue orders to put her overboard and a last word of advice is to make certain that the wooden plug which fits through the hole in the bottom planking is replaced tightly so that the boat does not sink immediately it leaves the railway. This has been known to happen, and it is surprising how often this little detail is overlooked.

## FUEL OIL TAKES THE PLACE OF GASOLINE

A recent demonstration before a large gathering of engineers and executives at the Engineer's Club of Philadelphia conclusively that furnace oil can be successfully used as a substitute for gasoline in bus engines by the attachment of a vaporizing unit known as the Godway Gas generator. The device consists of an aluminum pot in which is set a nest of stationary thin curved plates, radiating from a central core. The lower edges of the plates are in contact with the aluminum pot which is heated by the engine exhaust. The fuel is drawn from a standard carburetor through the inside of the pot over the surface of the warm plates, where it is converted into a dry gas for passage through the intake manifold into the cylinder.

Results showed that a twenty-nine percent economy was effected due to the difference in fuel cost and a further economy due to lower fuel consumption without changing carburetor setting. At the same time power was increased fifteen percent and the content of carbon monoxide in the exhaust was substantially reduced. The next logical development is the application of this device to marine engine use, where it should prove a boon to boat owners by increasing their cruising radius while decreasing the cost per mile. In short it would give them the advantage of diesel power without the expense and inconvenience of abandoning their gasoline engine with a diesel.

It Is Significant That The Dodge Boat Works Use Lycoming 8-In-Line Marine Motors Exclusively For Use In Their 26-Foot Runabout

Nothing *Finer*  
Can Be Said of Any  
Motor Boat Than,  
It is-

POWERED  
BY  
LYCOMING

LYCOMING MOTORS

LYCOMING MANUFACTURING CO.  
WILLIAMSPORT, PENNSYLVANIA

Lycoming Marine Engines Are Also Available To The Retail Trade

Mention MoToR BOATING, 57th St. at Eighth Ave., New York

# Artistic STEEL FLOATS

## FLOATING PATIOS FLOATING BREAKWATERS SWIMMING FLOATS FLOATING SWIMMING POOLS

ALL PATENTS APPLIED FOR

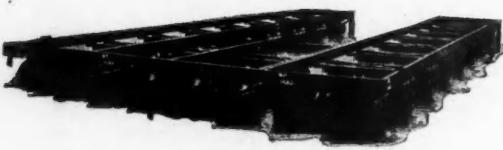
**A**RTISTIC STEEL FLOATS are built to fit any size boat. They are attractive, convenient and more durable than any other type of float or landing. Ideal for Yacht Clubs, Private Landings, Marine Service, Repair, Gasoline and Oil Stations. Made with single and double slips. Also without slip drives.



Double Slip Standard Steel Float



Single Slip Standard Steel Float



Single Slip Standard Steel Float showing drums and channels assembled, ready for sectional flooring.

Floating Steel Breakwaters of any size, built to order for calming rough waters such as on Long Island Sound.

Artistic Steel Floats and Breakwaters insure the safety of your family and boat.

Write today for further particulars

**WALSH-BUGBEE CO., INC.**

Engineers, Manufacturers and Builders of Artistic Steel Floats

206 E. HANOVER STREET, TRENTON, N. J.

TELEPHONE: 6257-8

New York Office: Mansfield Hotel, 12 W. 44th St.

TELEPHONE: VANDERBILT 2233

**A FLOAT AS GOOD AS YOUR BOAT**

## To Twillingate for a Boat

(Continued from page 34)

discussed; and a model was made. We had the finished boat in view before we broke away, for we would not see him again until then. Certain articles of hardware we were going to send him from the States. Lumber and rigging he could get there. The motor we would send up and install ourselves when we arrived. All was arranged and he promised to keep me informed as to her progress. We waved farewell to this sturdy old man and it indeed was one of the happiest moments of my life. I was going to be the owner of an auxiliary schooner. And so it was that Maybelle sprung into being.

To list the events of our return trip would doubtless be boring. Sufficient to say we did reach home just after our speedometer read some three thousand miles for the trip. Those of you with good imaginations can imagine how slowly the coming winter was to pass. But there were many things to do, especially as Spring came. Many articles had to be gotten off to him, as well as our own personal outfitting. Charts were to be gotten; navigating instruments and all, collected. Our plan was to sail her down ourselves to New York there to be completely fitted out. Word came to us from time to time that things were progressing well. When we received our first set of pictures we got our greatest thrill. Beyond all our expectations she was, too, as sweet as you please sitting up there on her ways. We could hardly hold ourselves back. We wanted to be off.

Well, June finally came and we started back to Newfoundland. There were four of us now, and so that you may get the whole picture right from the beginning, I am going to introduce them to you at this time. Some folks say this constitutes the humorous element of this story:

Raymond Ruge, Princeton '29, sailor of the outfit. That is, sailor of 18 foot sloops on inland ponds. Experience on large boats, none. Sea experience, the same.

William G. Luqueer, Princeton '29, cook and general utility man. Able to toss off quite respectable biscuits and pancakes while the ship performs barrel rolls and Immelmans. Sea experience, negligible.

Robert Q. Mellis, ex Princeton '29. (It might be said in defense of the title before Bob's class that this was the result of his thinking about the trip during the year before we sailed. His almost incessant thought and discussion on this subject left insufficient time for his scholastic work, and it suffered.) Bob was our supercargo and all-around joy boy. He could laugh when the rest of us wanted to beat someone up. Bob was able to pull ropes, draw water, empty the white pail, and so forth, on suggestion. Best habits, sleeping and playing rummies (until we burned the deck). Previous experience, canoe and rowboats.

Gordon P. Manning, Princeton '29, skipper, owner, heartless slave driver and order slinger. Qualifications, none.

I hear vague mutterings, dark oaths and "Serves them right if they bring up on the shore; no business for a bunch of land lubbers to put to sea like that." I know you old salts are saying there's a special god that watches over those that can't take care of themselves. All right, I accept it all, only now it's too late. We've learned our lesson and we came through, not smiling. I will admit, but we came through. I look upon our experience now as a very edifying sort of a thing. But I'm getting ahead of my story.

There were the four of us on the train sitting with our hands folded awaiting action. Tongues literally were hanging out. Trains ground slowly along. Steamers seemed to make no perceptible headway. It seemed aeons until we stepped ashore in that little village of Twillingate again. I confess there was a slight feeling of apprehension within me as I sought the vessel to slip. Perhaps things hadn't gone quite as planned. Perhaps she wasn't just exactly as I wanted her. Oh, but imagine you can, the thrill of finding her perfect in every way. Identical with what I had dreamed of for so long a time. And she was mine, actually mine. I walked over to her and with a reverent hand, touched her. To feel her was enough; my cup was brimming.

When it came to actual work on her there was much to be done still. On the dock lay the Twin Six motor that we intended installing in her. More of an experiment than anything else this was. I had had the motor and believed that with changes it could be successfully used in a boat for a short time at least. And so here it was to test my theories. When we had it safely bolted down in the engine room, that place certainly looked like a machine shop. The engine dwarfed all else in the boat. The astonishment that it created among the villagers was well worth the trouble of bringing it up. They stared at it open-mouthed. Down on their hands and knees they would run their fingers from spark plug to spark plug, sometimes counting it.

(Continued on page 136)

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### THE BARJOHRO

The Barjohro, a Toppan Llenroc type sport cruiser, equipped with a Tobin Bronze Shaft, won the 1928 Vanderbilt Express Cruiser Trophy at Newport.

*The Toppan Champion*  
**LLENROC II**  
*is equipped with*  
**TOBIN BRONZE**  
**SHAFTING**

THE Toppan Champion "Llenroc II," illustrated, is one of the standard fast Llenroc express cruisers designed and built by the Toppan Boat & Engine Company, Medford, Mass. She is a trim, speedy craft, and proved a consistent winner in every regatta entered during the 1927 and 1928 seasons, developing an average speed of over 25 miles per hour in 50 to 100-mile races for express cruisers powered with one 150 H. P. Sterling Petrel Motor.

Like all the Toppan boats, the Llenroc II is constructed, from stem to stern, of the finest selected materials, including Tobin Bronze Shafting and Bronze screw fastenings.

Tobin Bronze, the overwhelming choice of American motor boat builders for shafting and other underwater parts, is made by special processes which insure a uniform hardness and even grain structure. Other properties which commend Tobin Bronze to boat builders, naval architects and marine engineers are its tensile strength, high yield point and remarkable resistance to corrosion.

Tobin Bronze is manufactured solely by The American Brass Company and furnished in the form of Sheets, Rods, Tubes and turned and specially straightened Shafting.

**THE AMERICAN BRASS COMPANY**  
General Offices: Waterbury, Connecticut

**ANACONDA**  
**SHAFTING**

## Bridging the Gap

between ultra expensive custom boats and those born chiefly of quantity production ideas, the Sea-Lyons reveal a refreshingly new interpretation of boat style and quality,

—new style that implies notable refinement of lines and appearance, improved arrangement and fittings,  
—new quality that includes not only the finest materials, workmanship and finish, but better performance, smoother riding, greater seaworthiness, longer service.

It is easy to design a boat suited ideally for volume production. It is easy to build a boat for speed only. It is easy to produce a dry, comfortable, smooth riding boat, or one that is especially seaworthy. But to harmonize all these features in one well balanced design—sacrificing nothing—overdoing nothing at the expense of something else equally desirable—that rare balance you will find only in the Sea-Lyons

We would welcome an opportunity to show and prove these Sea-Lyon qualities to you. When may we give you a demonstration? Call at our show rooms, or phone for an appointment.



## Six Superb Sea-Lyons for 1929

\$2,975 to \$30,000  
delivered at New York

Sea-Lyon 35 .....	\$ 2,975
Sea-Lyon 40 .....	4,650
Sea-Lyon 45 .....	5,850
Sea-Lyon 60 .....	12,500
Sea-Lyon 65 .....	30,000
Sea-Lyon Commuter ..	25,000

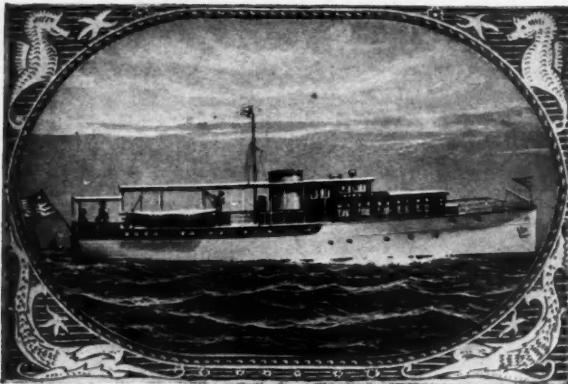
Prices Quoted at New York

And remember, Sea-Lyons are the only  
standardized runabouts having a complete  
plant and service station in New York City.

**HOWARD W. LYON**  
INCORPORATED  
**HOTEL BARCLAY**  
532 Lexington Ave. (at 49th Street)  
**NEW YORK**

Telephones: Vanderbilt 4445-4446  
Plant and Service Station: City Island 1645-1646.

# Exclusively Fast Runabouts



## *A Modern* 76-ft. DIESEL CRUISER

*Exceptionally large cruising  
radius at minimum cost*

THIS yacht is the result of 30 years' designing and building experience plus the latest engineering features developed during 1928.

Every possible aid is at your finger tips. Electric toilets, electric refrigerator, electric pressure water system, and bridge control. Every convenience known on shipboard has been worked out for navigating, operating and comfort of owner and guests. There are two double and one single staterooms; 4 K. W. Generator; 110 Volt Battery.

Come and see the perfect ship built to standardized custom requirements. Nothing like it exists. The same yacht may be had with gasoline engines and equipment to suit purchaser.



TWENTIETH CENTURY MARINE MOTORS are used to power our standardized boats. These power plants are built in our own shop in two models, four- and six-cylinder, 60 and 100 h.p.; our interest covers both the boat and its power plant.

NEW YORK  
YACHT, LAUNCH & ENGINE  
CO., Inc.

MORRIS HEIGHTS, NEW YORK CITY

## To Twillingate for a Boat

(Continued from page 132)

pet cock or two. It got so that I couldn't work below without hearing an argument above as to how many cylinders she had. Then I would always be brought on deck to make someone a liar. Our engine trials didn't give us so much satisfaction. One bank of cylinders wouldn't get to work. Coaxings and coddlings, but still the right side remained indolent. I began to have a feeling that perhaps we should have taken the engine down before sending her to Twillingate; perhaps she needed new rings.

The matter of her rigging came along and for the while we forgot all else. Her standing rigging was to be spliced. Running rigging to come and sails to be bent. All the innumerable tasks that make finishing up so bothersome. Cabin to be gone over; berths to be made comfortable. A galley to get in working order, for we wanted to live aboard her at the first opportunity. She must be ballasted; brought down to her water line. Hardware to fit. And speaking of hardware puts me in mind of the duties and customs laws of this country. Perhaps a word on them will not be amiss; some of you may do as I have done and this will help you.

First of all the Newfoundland Government will make you a present of some \$15 per ton on every gross ton that your boat weighs. This they do to encourage their boat building industry, and a very good and wise plan it is too. It comes as a pleasant relief from all the duties that they charge on goods imported there. These duties are on practically every article that comes into Newfoundland and vary all the way from 15% to 90%. Hardly any of our items came in below 35%. For example, our coal range cost \$35 and we paid a \$21 duty on it before we could take it out of the crate. That is just one instance. And so when I say that Newfoundland had a big year last year, you will understand why. I am told that the country exists from the fruits of its duties. It has no manufacturers to speak of and it must have some source of income, I suppose. Well, let's look at something a little more pleasant than this. Why here's Maybelle ready to take her trial trip under sail. Let's hop aboard and go out with her.

Up with the anchor and hoist the sails. Out of the harbor mouth on her maiden voyage she glides with scarce wind enough to fill her sails. She responds to the slightest touch of the wheel. She points up into the wind, and we let her fall off and get her best course. The wind springs up and she heels a little under it. More wind. We are going to have a real trial after all; this has been too much of a drifting match. Coming into the harbor after two hours of varied sailing and maneuvering the wind outdoes itself with a blast that makes us wonder whether we shall go up on the shore under bare poles or not. But no, we've brought her about, and now she's heading into it, and the anchor is overboard. Everybody including the expert seamen seem completely satisfied with her performance. She has behaved like the little lady that she is.

Let's have a look at the boat as she lies quietly at her anchor after the run. Standing in the stern sheets, right before us is the little five by six foot well called the cockpit. In its center is the binnacle with its five inch liquid compass in it. On two sides the cockpit is surrounded by the weather boards, which are but continuations of the raised cabin sides. Looking forward we see the skylight which is directly over this big brute of an engine. From the starboard side a flush hatch leads below to this engine room. Below we have separated this compartment from the main cabin with the belief that there are certain odors attached to any motor which are undesirable in a man's bedroom, for example. So all our evil smells are kept strictly in the engine room. Here also are the two large gasoline tanks with their filler pipes leading on deck. An abundance of space is available here below for the storing of all sorts of gear, suitcases, tools, sails and all.

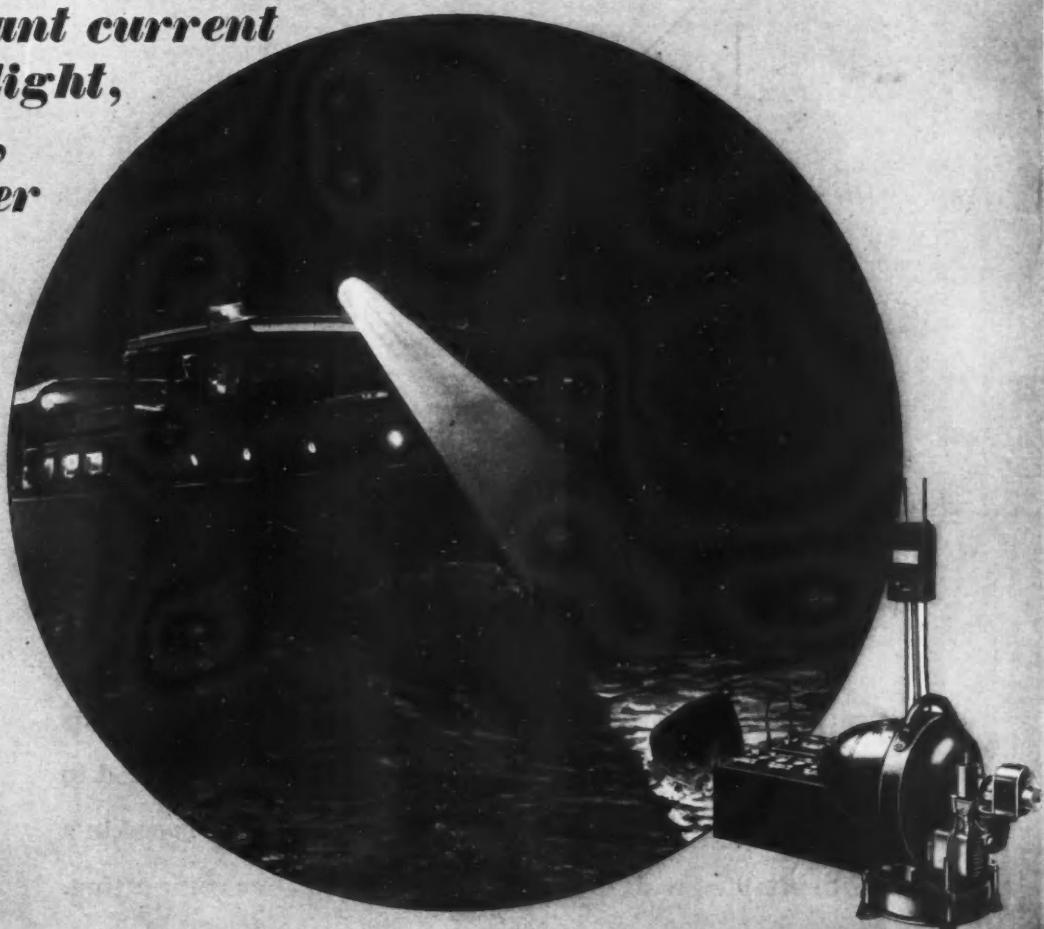
The Charlie Noble hits your eye next in line on the deck again. It comes through the deck aft of the raised cabin a couple of feet. The stove is directly below placed in under the deck so as to give more room when working in the galley. Likewise the sink is slightly under the starboard deck. In this way the cook has none of these instruments taking any of the precious headroom. The bulkhead is just aft this stove. Now that you're below we might as well go all the way forward. Directly opposite the galley and occupying perhaps four feet is a dresser with icebox built in to one side. Numerous drawers give all kinds of space here. Pretty nearly full headroom is had around the mainmast for the hanging of oilskins and boots. Being deposited here when wet, the cabin is much drier than it would be if they were carried all the way through.

Going forward there is the hinged central table, which when open allows the lockers on either side to be used as convenient seats. Here six can comfortably hold forth. The berths directly behind these seats can also be used for lounging purposes as

(Continued on page 140)

APRIL, 1929

*Instant current  
for light,  
heat,  
power*



Thousands in use the world over providing light, running motors for pumps, anchor hoists, compressors, fans, tools, etc., heating ranges, percolators, toasters, soldering irons, etc.

Runs  $\frac{1}{2}$  H.P. motor or 40 lights continuously.

Generator weighs 110 lbs., stows in 21x14x21 inches.

**\$275**

Complete  
f.o.b. Port Chester  
600 Watt 32 Volt Generator  
with built in, air cooled  
Gasoline Engine  
80 A. H. Storage Battery  
Starting Switch

Storage battery has reserve capacity of 2500 watt hours available instantly without running generator in emergencies.

Use a plant with  
Storage Batteries

HOMELITE CORPORATION 79 RIVERDALE AVENUE, PORT CHESTER, N. Y.  
Distributors throughout the world for sales and service.

# HOMELITE

**Portable Electric  
Light & Power Plant**

© 3269B

Mention MOTOR BOATING, 57th St. at Eighth Ave., New York



**C**NJOYMENT of watersports reaches its maximum in the ownership of the swift, sleek, blue-blooded Banfield "32." This richly groomed sea skiff is designed, equipped and powered to meet every demand for seaworthiness, comfort and speed in a craft suitable for deep water fishing, cruising or commuting.

# BANFIELD

*Powered with*  
200 H.P. Kermath  
Speed 28-30 M.P.H.  
\$7950.00

"32"

*Powered with*  
100 H.P. Kermath  
Speed 18-20 M.P.H.  
\$7150.00

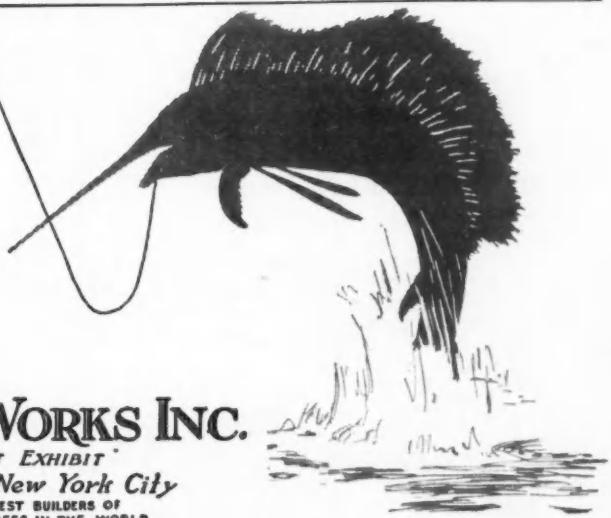
Illustrated Literature on Request



APRIL, 1929



*The World's  
Fastest  
Standardized  
Cruiser*



## BANFIELD SEA SKIFF WORKS INC.

SALES OFFICES AND PERMANENT EXHIBIT  
277 Park Ave. Bldg. - 502 Lexington Ave. - New York City  
PLANT: ATLANTIC HIGHLANDS, NEW JERSEY

ENTRANCE  
LARGEST BUILDERS OF  
SEA SKIFFS IN THE WORLD



Mention MoToR BOATING, 57th St. at Eighth Ave., New York



APRIL, 1929



A Glimpse of The Amazing New Baby Gar "30"—\$2950

### BABY GAR! How much more than just a name!

He who owns a Baby Gar possesses a work of art; a thing of beauty, life and endurance; a playmate for years of health-giving, thrilling recreation. The Baby Gar is all one would expect of a boat built under the supervision of Gar Wood by the very men who fashioned the Miss America VII.

Most amazing of all is Baby Gar price. Because these Gar Wood boats have won such world-wide admiration, are known as the world's softest riding runabouts, demand has multiplied production.

And now, the Baby Gar "30," illustrated above, sells for \$2950 complete with 120 h. p. Chrysler Imperial Marine Engine.

For assured delivery write, wire or phone **now** and tell us what name to put on the stern, or ask for detailed information on all the *Baby Gars*.

**DEALERS:** A material expansion in Gar Wood representation is now under way. Those who can represent a distinguished product to a distinguished clientele are invited to investigate this profit opportunity.

Baby Gar "30"—120 h.p.	30-32 m.p.h.	-	\$2,950-\$3,550
Baby Gar "40"—200 h.p.	40-42 m.p.h.	-	\$4,500-\$5,350
Baby Gar "50"—400 h.p.	48-50 m.p.h.	-	\$8,950
Baby Gar "55"—500 h.p.	53-55 m.p.h.	-	\$10,950

# GAR WOOD Inc.

THE GREATEST NAME

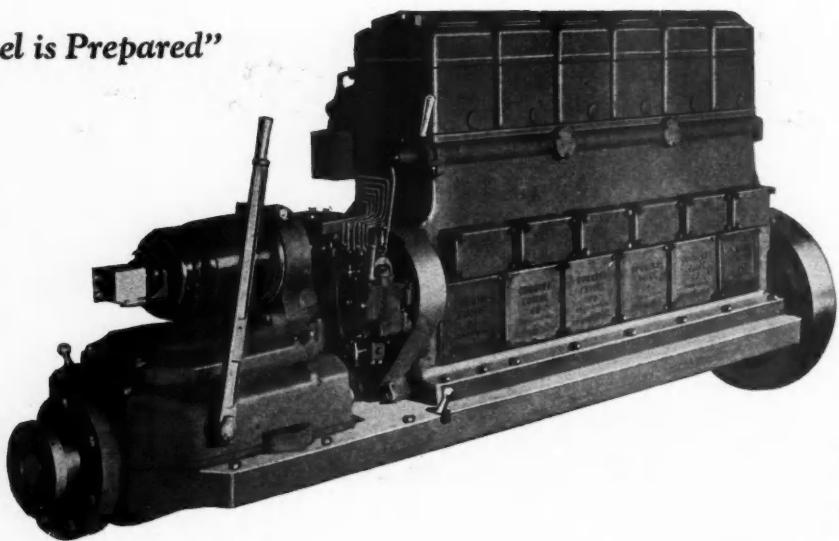
IN MOTORBOATING

429 Connecticut Avenue, Detroit

1860 Broadway at 61st St., N. Y. C.

# CUMMINS DIESELS

**"The Fuel is Prepared"**



6 3/4" x 9"  
1 to 8 cylinders  
25 to 235 Horse  
Power  
Generating sets  
10 to 85 k.w.

## CUMMINS MODEL K

An engine of maximums and minimums, properly blended to a specific ideal—

*Not the lightest weight with the shortest life—nor an engine with a maximum horsepower, imposing a maximum strain on a given material—*

*Not a laboratory engine, built of special materials and by special machinery, regardless of cost—*

*Not a custom-made engine to satisfy a particular whim—*

*Not an automotive type, with its maximum horsepower seldom used—*

**BUT**—the lightest weight, consistent with strength, to endure the rigors of a real marine engine service—the engine that ages with the boat. One built in quantities with die-forged parts and jig machining,—so that repair parts fit—one that is easy to buy—easy to run—easy to get at. One that is clean and odorless—that can be started and controlled from the bridge. One that will set a new standard in economy for fast, commodious, but withal real sea boats.

### INSTRUCTIONS FOR STARTING MODEL K

*Retard the little lever on bridge, relieving compression—*

*Step on starter—*

*Count ten—*

*Advance little lever and engine starts quietly and instantly.*

APRIL, 1929

# What Is All This Talk About Diesels?

They are not new—nor more experimental than gasoline engines, turbines or radios. Motor-ships, yachts, tugs, stationary plants, and now even a 10,000 ton battle cruiser, have definitely established the Diesel. To be sure, they are the larger sizes, and that is where the CUMMINS story begins.

CUMMINS realized, eight years ago, that merely reducing the scale of successful large engines did not make successful small engines—

Not only on account of the mechanical complications, but due to the difficulty of ACCURATELY MEASURING minute quantities of fuel used in a small engine, particularly while idling, and PREPARING this fuel for instant burning.

## ACCURATE MEASURING

The large engine is not so sensitive to a slight variation in the quantity of fuel supplied for each combustion stroke—the fuel is injected at 3,000 to 8,000 pounds pressure, the metering being done at these high pressures.

To measure off as little as one-sixteenth of a drop at such pressures gives one an idea of the problem presented to Diesel manufacturers who attempt to build the smaller sizes using the large engine principles.

## HOW DOES CUMMINS DO IT?

CUMMINS, in the first place, does not inject the solid, wet fuel, because that would be like lighting the old-fashioned gasoline stove before the fuel was prepared for burning—you remember the red flame and black smoke—Incomplete combustion—

CUMMINS delivers the raw fuel to the injector at only thirty-five pounds pressure—just enough to overcome line friction—measuring accurately at this pressure the amount required, and with simple metering valves.

## MAKE THIS TEST

Turn on the full city pressure in the garden hose, fitted with a nozzle—try to fill a cup full of water—then remove the nozzle and repeat, and one has an effective demonstration of the CUMMINS low pressure metering principle.

## FUEL PREPARATION

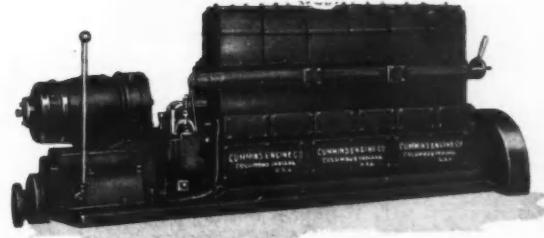
The fuel is now delivered to the simple CUMMINS injector where it is subjected to the heat of combustion and converted into an almost dry gas that burns instantly when mixed with air,—like the gas you finally light to a blue flame in

the old fashioned gasoline stove. Unlike the gas that comes through a carburetor, the Diesel gas is not mixed with air until it enters the cylinders.

BECAUSE Cummins converts an accurately measured quantity of fuel into a gas before burning, we satisfy the prime requisites of the small DIESEL—in fact, this same CUMMINS principle greatly improves the operation of larger Diesel engines—amply demonstrated on engines up to 21" x 21" bore and stroke.

Then, there is the little "SNEEZER," or cup wiper, an exclusive CUMMINS feature which keeps the top of the injector clean and adds to turbulence and flame propagation. We will describe this in detail for you in a later issue.

**In short — CUMMINS IS EIGHT YEARS AHEAD in BUILDING SMALL DIESELS.**



Six Cylinder Model U CUMMINS Diesel with 32 Volt Starter-Generator

## CUMMINS MODEL "U"

The Cummins Model U is a 4½" x 6" Diesel marine engine built in one, two, three, four and six cylinder models, developing from eight to sixty horsepower at 800 to 1,000 r.p.m. The ideal power plant for smaller cruisers, auxiliary schooners and work boats. Also furnished in complete electric generating sets from 5 to 30 k.w. capacity, and as power units for all industrial purposes.

## CUMMINS ENGINE COMPANY, INC., Columbus, Indiana

New York Office: French Bldg., Fifth Ave. at 45th St.—Telephone: Murray Hill 8772 (Marine Sales)

### Distributors:

New York: SMITH-MEEKER ENG. CO., 123 Liberty St. (Generators)  
JOHN REINER CO., 309 Church St. (Industrial)  
Philadelphia: SMITH-MEEKER ENG. CO., The Bourse  
Boston: DIESEL MARINE EQUIPMENT CO., 73 Tremont St.  
Baltimore: MAHON & GALL, Inc., Pratt and Gay Sts.  
Washington: ROSS L. FRYER, Transportation Bldg.  
Montreal, Canada: J. NAPIER, Reg., 102 Aubut Ave.

Miami: P. K. HEXTOR, Southern Sales Mgr., Box 2945  
J. N. VERNAM, 169 N. W. South River Drive  
Harrisburg, Texas: PEDEN IRON AND STEEL CO., Marine Branch  
Rockport, Texas: ROBERTS BOAT WORKS  
Wilmington, Cal.: JOHNSON BLAIR CO., 1024 E. Anaheim St.  
Seattle, Wash.: S. V. B. MILLER, 63 Columbia St.  
Guaymas, Sonora, Mex.: A. A. LELEVIER

# Sounding by Sound WITH THE Submarine Signal **Fathometer**



FATHOMETER INDICATOR

In fair weather or storm, in fog or rain, accurate, instantaneous soundings automatically flash on the Fathometer Dial and give the Navigator constant, visual knowledge of water depth under the keel when cruising or at anchor.

## Modern Aids to Navigation INSURE SAFETY AT SEA

Fifteen years of research in the laboratories of the Submarine Signal Corporation have produced a perfected safeguard to navigation in the

## Echo — Depth — Sounding **FATHOMETER**

"A YACHT IS AS MODERN  
AS ITS EQUIPMENT"

Literature upon request.

**Submarine Signal Corporation**  
EXECUTIVE OFFICE  
160 STATE STREET  
BOSTON, MASSACHUSETTS

## Boating On Arctic Waterways

(Continued from page 106)

river were especially convincing on the hellishness score. I intended landing only in case the pitch was so steep that I could not see to the bend when standing on the seat of my boat as it neared the head of the rapid. When this opened up as only a swift narrow chute with the whole flow of the river concentrated in a single deep channel, I knew the motor had enough power to manage the bend, even in the face of a much heavier set against the outside bank than appeared likely with the moderate descent.

On the off chance of bumping an unexpected boulder, I lowered my center of gravity by settling to my knees on the middle thwart, holding the tiller-lines with a single back-stretched hand. The precaution was hardly necessary. There were several hundred yards of tumbling white water above the bend, with a somewhat lesser stretch where the rapid tailed out below. ~~But~~ bark was a good deal worse than bite; in fact, it is probable the heaviness of the roar was largely due to the rolling down of a few boulders which had not yet reached stable equilibrium. As for the bend where the river was averred to have to turn on its back to wriggle round, I am certain that the boat would have drifted through safely without even the steady help of oars.

That was the only rapid worthy of the name that I encountered in the five hundred miles or more between Edmonton and the so-called Cole Falls below Prince Albert. It provided a fine exhilarating run but could hardly be dangerous at any water save to badly overloaded boats. There were a score or so stretches of fairly fast and somewhat broken water in the next two hundred miles before the river spread out among the pestiferous sand-bars below Battleford, but none with enough individuality to impress it upon my memory.

It was under a hot noonday sun that I came to the end of a long southerly reach of river and headed easterly past the ferry plying between two tiny settlements marked on the map as Duvernay and Brosseau. As I ran under the cable my attention was attracted by the violent tooting of the horn of a motor racing down the steep bank on the southern or Duvernay side. Waving the usual salute I was about to continue on down the middle of the river when the excited gesticulations of the passengers in the car indicated that they were signalling me to land. Swinging back against the current to the eddy below the ferry I had the pleasant surprise of being greeted by Mr. Weir and Captain Buchanan of the Alberta Motorboat Company. Off to fish on some northern lake over the weekend, they had motored the hundred miles from Edmonton that morning, to arrive at the ferry at exactly the moment I chanced to be passing it after covering a hundred and fifty miles of river. With nothing having been said in advance about the rendezvous, the coincidence was well worth celebrating with what Mackenzie would have called a lunch-hour regale upon the bank.

Islands, often dividing the river into three or four channels became increasingly frequent from Duvernay on. This provided occasional opportunities to cut off distance by following narrow side chutes on the inside of bends. For the next hundred miles these were usually swifter than the main channels and not infrequently quite as deep. It was only when I began to thread the network of interlacing channels in the broad bottoms below Battleford that taking supposed cut-offs came to be penalized more often than not by an entanglement in shallows from which there was no escape save by wading and dragging the boat.

I camped that night in a clump of birch not far from the site of old Fort George, now only a name on the map. A doe and a fawn were drinking a few yards below the boat when I tumbled out in the morning, both units of the pretty pair looking over with cool appraisal before retreating in a leisurely trot up the bank. Game laws, evidently, were being well observed along this part of the river.

Running down a long southeasterly reach early that afternoon I was surprised to come upon a section of railroad grade. At a camp a few miles below men were washing clothes on the bank, while an adventurous young woman in hiking breeches was scrambling out on a jutting log to kodak my boat in passing. As she also seemed trying to convey some message I shut off the motor, to hear the pleasant news that there was a Sunday dinner waiting for me in the cook-tent on the hill.

The gracious lady proved to be the wife of the contractor building the grade. Reading of my departure in the Edmonton paper, they had figured I might be coming by about Sunday and so had been on the lookout. Having pushed off and eaten a cold breakfast in the boat as a self-imposed penalty for oversleeping, that dinner was doubly welcome. I recall especially a great slab of roast pork, sizzling in its own grease, with a bowl of wild strawberries flooded with cream from the milk of the camp's own cow.

The grade was being built for a branch of the Canadian Pacific, run up from Battleford to serve a section of farmland country on the north side of the river hitherto without railroa

(Continued on page 146)



# Diesel Yachts

There's no mistaking the durability of the steel yacht, nor the economy of Diesel Power.

Consolidated, with its background of Yacht building experience coupled with unparalleled engineering skill, is the choice of Yachtsmen who value style, beauty, comfort and performance.

Diesel Yachts designed, built and Speedway powered by Consolidated insure safety and satisfaction.

Ask us for literature and full particulars concerning the Diesel Yacht and other Consolidated boats from the Play Boat to the luxurious Consolidated Cruiser.

DIESEL YACHTS      PLAYBOATS  
CRUISERS      COMMUTERS  
RUNABOUTS      TENDERS  
SPEEDWAY ENGINES — DIESEL  
AND GASOLINE

**CONSOLIDATED  
SHIPBUILDING CORP.  
MORRIS HEIGHTS • NEW YORK**

Our plant is virtually a permanent Motor Boat Show—if you are interested in watercraft you will enjoy inspecting it.

We invite consultations—ask us for suggestions or literature concerning any type of pleasure boat.



FANCY FREE... TO EVERY POINT OF THE COMPASS



*Out where the salt billows roll  
in a "LITTLE LINER"  
of your own*

Out in deep water with the big ships and big fishes, with the Dyer MOTORCRAFT and perfect safety. Her round bilge and patent construction make her absolutely safe and free from weaving or twisting in any kind of weather, even if driven at maximum speed of thirty-five miles per hour—not will she feel any ill effects from a season of rough water experience.

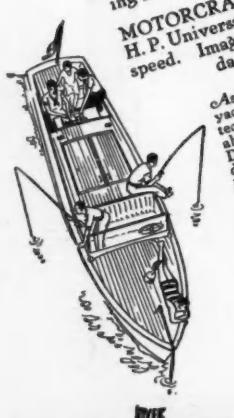
Deep sea sailing men designed MOTORCRAFT and have given this splendid runabout the speed of a racer and the buoyant seaworthiness of a lifeboat. She will ride from the heaviest seas without nosing under and cut down from full to trolling speed without losing her buoyancy.

MOTORCRAFT, powered by an Eight cylinder 110 H.P. Universal, will turn in a forty foot radius at top speed. Imagine the thrill of this experience without danger or fear to those on board.

Ask any experienced yachtsman, naval architect or boat builder about MOTORCRAFT. Descriptive catalog and demonstration gladly given upon request.

DYER MOTORCRAFT CORP.  
East Greenwich, R. I.

HAPPINESS



**MOTORCRAFT**

The World's Best Built Boat.

## Boating On Arctic Waterways

(Continued from page 144)

facilities. Only the short section I saw under construction appeared to be near the river. The fact that the farm lands and most of the towns are back on the elevated plains has made it impracticable for railways to take advantage of water-level routes along the Saskatchewan.

The map showed the site of old Fort Vermillion as directly opposite Lea Park, a post-office and store where I stopped for gasoline. None could tell me more than that the land belonged to the Hudson's Bay Company but had nothing on it now. Such also, was the report on Fort Pitt, the historic site of which I passed not long after crossing the Alberta-Saskatchewan boundary. Even Fort Carlton, most famous of all the posts between Fort Garry and Edmonton, failed to develop into as much as a farming village. On none of the great waterways of the continent have the marks of the past been so completely obliterated as upon the Saskatchewan, for many years the most important fur-trade route of them all.

My final day into Battleford was down a spreading, sprawling river that formed a fitting vestibule for the plunge into the inferno of shallows beyond. Sand-bars became so frequent that I no longer tilted the motor on striking one, but simply let it keep chugging along until it either stalled or floundered through. As there was no plunger pump to clog or scour out with the sand this could be done without seriously endangering the motor, but only so long as the propeller was not allowed to hammer away at anything solid. When I was a bit slow in shutting off the motor after the swiftly spinning wheel had struck through to a nest of rocks in the heart of a bar of mud I was letting it kick through, not even the cushion spring could prevent a shearing of the protecting pin.

Dropping down with the oars in search of a place to land for repairs and camp for the night, I had a good opportunity to ponder the story of the Battleford Twins. The original settlement of that name, spread raggedly along the bank to the right, is a conspicuous example of a community that fell a victim to its own greed. Already a large and growing town before the advent of the railway, it made the fatal mistake of trying to charge the transportation people an exorbitant price for right-of-way. With one bank looking as good as the other to the railway, no time was lost in laying out a townsite of its own across the river and building there the station, shops and other works originally intended for the old town. As a consequence North Battleford quickly grew to be a thriving little city, while the grasping community south of the river has dwindled to half of its pre-railway size, with hardly business enough to justify the three trains a week on the branch stub which the railway tossed it as a sop.

North Battleford, with its towers and spires and stacks glowing in the level rays of the setting sun, was very impressive from the river, notably a huge group of green-roofed buildings of noble architecture a mile or two to the east. Tinkering a new shear-pin to place in the camp I made under the south end of the great concrete highway bridge, I speculated as to whether this distinguished pile was a university or just a modern factory in the construction of which utility had been subordinate to the aesthetic. I could not be quite sure; but in any event it was inspiring to find so striking a structure away up here on the outermost edge of cultivation—almost on the rim of the Jumping-off place for the Back of Beyond.

The sun had set by the time I finished going over my motor and spreading my bed for the night. Taking a couple of empty gasoline cans, I clawed my way out through the jungle of willow and arrow-weed to a point where I could clamber up the bridge abutment to the highway. Just as I pushed my tousled and pussy-willow-festooned head above the whitewashed guard-rail an old man drove along in a Ford, heading north. My destination was in the opposite direction but, anxious to get a line on distance, I waved my red cans and shouted, "How far for Battleford?"

The old fellow clapped his foot on the gas with a tread that must nearly have kicked the rickety bottom out of his car. "Mile!" he yapped as the bounding Lizzie dashed at full speed under a sign which threatened a fine of twenty-five dollars for anyone driving at over fifteen miles an hour across that bridge.

An hour and a half later, mellowed by a bath and a good hearty dinner at the Battleford hotel, I sat listening to the proprietor tell of the troubles which had come so near to reducing the original proud settlement to the status of the old trading posts I had passed on the river.

"It surely was hard luck," I sympathized; "doubly hard that you should have lost that beautiful group of buildings with the green roofs."

"Well that," he grinned—"that institution is a loss we don't cry over much. That's the Provincial Insane Asylum, and it's always keeping the North Side stirred up over the nuts that

(Continued on page 148)

## TO MOTOR BOAT MEN

Open Letter No. 2, relating to 100 to 200 horsepower Sterling Petrel.

**T**HIS is the second of a series of advertisements designed to acquaint yachtsmen in a non-technical way with the fundamentals of good engine design. Unless a manufacturer, leading in current engineering practice, publishes the facts, how will the buyer differentiate? The added cost of a boat with a STERLING is a small percentage of the price. STERLING has put that difference in the engine.

1. (Of sufficient importance to reiterate this month). The crankshaft is counter-weighted and dynamically balanced, not with one or two counter-weights but with twelve. It reduces bearing loads 55%, reduces the oil temperature at the bearings over 20%, makes a smooth running engine with the elimination of periodic vibration and prolongs its life.
2. The Petrel is about 7 inches longer than general practice. This added length includes the necessary inches for an oversize clutch and reverse gear, longer bearings and more water space between the cylinders and around the valve seats, assuring better cooling.
3. It is an L-head engine. This permits the removal of cylinder heads without detaching the inlet or exhaust manifold or exhaust line or fuel line or any other apparatus. It is lower in height and does not interfere with head room.
4. The head inside has an unusual shape which allows the passage of cool incoming gas over the spark plugs, keeping them cool and permitting high load running.
5. The main bearing construction is unusual. No side thrust is communicated to the attaching studs, no shims are used in the connecting rod bearings. These bearings are easily replaced but with the proper attention to changes of oil, etc., they probably need never be replaced in the life of the engine.

Spread the difference in cost over the 10 to 20 years that this engine will serve you faithfully and the amount is infinitesimal and in that period of running you will observe a greater pleasure from your boat.

*C. V. Quigley*  
President.

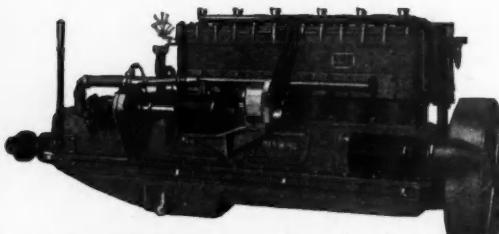
STERLING ENGINE COMPANY  
BUFFALO, N. Y.

Engines range from 12 to 565 B. H. P.



## BB-SIX "Little Chiefs" for Genuine Satisfaction In Cruisers 30 to 50 Feet

Here is ample power in compact form, up-to-date in every respect and with all the famous THOROBRED characteristics of reliability and long life with low up-keep. A power-plant you will be truly proud to own. Proved right through years of service in hundreds of craft in all parts of the world. Let us know your requirements so that we can tell you what a single or twin screw BB6 power-plant will do in your boat.



BB-Six THOROBRED unit powerplant. Two sizes, 4½" x 6" and 5" x 6", medium duty or high speed types. With 2-9/16" 7-bearing crankshaft and famous Red Wing pressure feed lubrication.

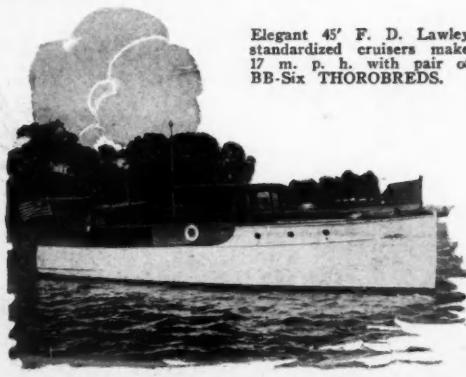
12 THOROBRED engine sizes 4 to 150 h.p. in 1, 2, 4 and 6 cylinder models; medium heavy duty or high speed types. Also built in true twin screw pairs.

New 1929 Catalog Describing  
All Models Mailed on Request

## RED WING MOTOR CO. RED WING, MINN. U.S.A.

Eastern Distributors: W. H. Moreton Corp., 1043 Commonwealth Ave., Boston—Verrier, Eddy Co., 201 E. 12 St., New York City—W. E. Gochenaur Mfg. Co., 631 Arch St., Philadelphia—F. B. Eisenbrandt, Foot of Light St., Baltimore—Hutchinson Boat Works, Alexandria Bay, N. Y.

Elegant 45' F. D. Lawley  
standardized cruisers make  
17 m. p. h. with pair of  
BB-Six THOROBREDS.



## Boating On Arctic Waterways

(Continued from page 146)

break loose. Had a phone that they were hunting some of them in the river bottoms this afternoon."

"Oh!" I said; and again, "Oh!" That accounted for the rum of the old man in the Ford. To be taken for The Strangler and an escaped lunatic in the same week was unwonted distinction.

The only thing the matter with the two hundred miles or thereabouts of river between Battleford and Prince Albert is that the bottom and the top are too close together. It is more like the Missouri in this respect than any other river of my experience. For shallows and bars, indeed, the Saskatchewan is by long odds the worse of the two. The same high, steep well-wooded banks which had walled the river to left and right ever since I had left Edmonton still continue to blot a broad belt of sky on either side. But now they were from two to four miles apart, with the river reeling drunkenly back and forth across the broad flat bottoms between. Scenically beautiful beyond the power of words to describe, it was navigationally vile to the last degree.

For an unhurried drifter this sprawling stretch of the Saskatchewan, with its weeded islands and network of side-channels, would be delightful, especially after the shooting season opened in the middle of September. But for one tuned up for a race with winter to Huson Bay the incessant delays from groundings were very trying. There was still too much silt in the water to permit one to read the riddle of the sands by the changes of color. Only the surface ripples availed to forewarn against what lurked beneath, and these were almost stupefied by the sluggishness of the current and the obliterating waves kicked up by the unceasing head-winds. Time and again I was decoyed into channels which, dividing and subdividing, finally brought up against piles of drift which closed the way completely and left no alternative but to retrace my maze-like route and try another lead.

In the high water of July and August going would have been easier, as it would also have been in that of the flood from the storms which broke a few days later. Now, with miles of brown bars uncovering as the river fell, and miles more lapped by but a few inches of water, navigation was just about at its worst. My usual procedure was to run at full speed until the suck of the bottom and an agitated wake indicated imminent shallows, and then shut down the motor to half or quarter and go on until the propeller hit sand. If the ripples promised deep water within a few yards I would let the motor try to drive through. If the shallows appeared to continue indefinitely I would tilt the motor and take to the oars until the boat grounded or reached a new channel.

With the boat solidly grounded there was nothing to do but tumble over and drag it. The necessity for doing this arose so frequently that I was often bare-footed for hours at a time. As long as there was a steady set of current the sand underfoot was always solid enough for one to walk over or even set himself for a pull at the boat. As the current slowed down, however, when a channel was blocked or congested by drift, the lighter silt deposited afforded a very soft and precarious footing. If one sunk too deeply it was necessary to climb back into the boat, pole on a few feet more and try a new place.

I might add here that the dangers of so-called quicksand are greatly exaggerated. Holding the gunwale of a boat there is no chance at all of getting down beyond possibility of extrication. And even with nothing whatever to hold to, there is a mixture of sand and water which one cannot manage to work out of by throwing himself flat and paddling and rolling sideways. With certain kinds of soft mud (such as that deposited for miles along the edge of the below-sea-level Salton Sink) it is different. Nothing animate or inanimate can keep from being engulfed in so fluent a mixture. But that kind of mud, unfortunately, is not dropped by any flowing river.

There was no especial hardship on this ding-dong floundering among the bars of the smeared and flattened Saskatchewan, but rather just a steady grind of daylight-to-dark work that was not setting me forward at anything like the rate I needed to maintain to keep my lead on Winter. I only averaged from forty to fifty miles a day between Battleford and Prince Albert where half the running time and a tenth of the effort on an open river would have covered a hundred miles or more with the same outfit. To set the record down in any detail would be but a monotonous repetition of floundering, duckings, backing-up and long back-breaking pulls against the wind when gasoline had all been popped off in futile buckings of sand-bars.

Intermittent showers added to the bothers from bars and head-winds during the last day or two of my wearying grind through the shallows, but it was not until the stacks of Prince Albert were pushing up above the treetops to the east that there were indications of the breaking of a general storm. I was drifting lazily down the middle of the river and eating a cold

(Continued on page 150)

# EMPIRE

permit no. 98

## MARINE OILS

# SPEED!

And with it that ever lurking danger, hidden in the background.

The danger of improper lubrication.

Waiting its opportunity to wreck havoc on a fine piece of machinery.

All because of a misconceived idea that one oil is as good as another.

*"Betty"*  
Unbeaten in  
Her Class  
1927-1928  
Using  
"EMPIRE"  
Exclusively



### "EMPIRE" MARINE OIL

Is built especially to stand up under these excessive speeds, and under abnormal loads. It is designed and refined exclusively for the lubrication of Marine Engines.

## WHY GAMBLE?

*insist upon*

# "EMPIRE"

## THE SUPER MARINE OIL

MADE FROM 100% PURE PENNSYLVANIA CRUDE  
IN 3 GRADES

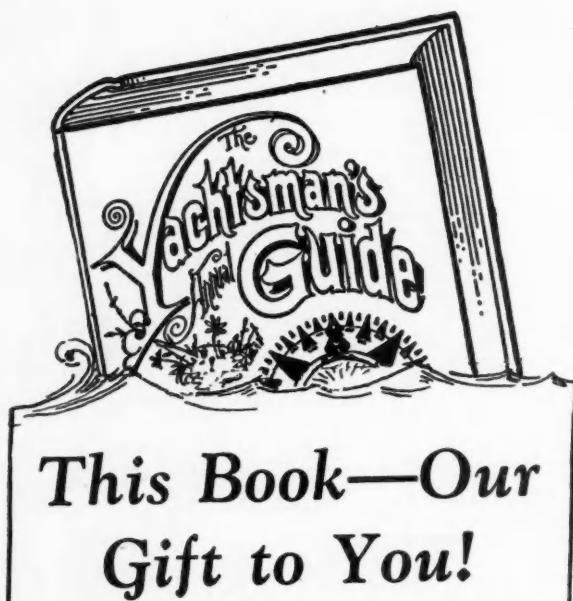
*Write us for our exclusive distributors proposition*  
MANUFACTURED EXCLUSIVELY BY

PENNSYLVANIA PETROLEUM PRODUCTS CO., Inc.

PROVIDENCE

RHODE ISLAND

Mention MoToR BOATING, 57th St. at Eighth Ave., New York



## This Book—Our Gift to You!

The new Yachtsman's Guide is the only complete, up-to-the-minute yachting encyclopedia published. It contains 500 pages crowded with just the sort of practical information every motor-boat man wants. A copy of this invaluable volume should be aboard every boat and in the library of every yachtsman's home—on hand for immediate reference at all times. The following list gives you merely a partial glimpse of the wealth of material this book contains. Read it—then send for your copy at once!

All about engines—Installation, Ignition, vaporization and operation.

Hundreds of helpful hints on outfitting and overhauling. More than 100 Motor Boatmen's Charts for the entire Atlantic Coast, Great Lakes and Canada.

Marine Laws—Rules of the Road at Sea.

What to do if the motor stops unexpectedly.

Times of high and low water and direction and velocity of tides in all ports.

Latitude and Longitude Tables, giving locations of over 1,000 points.

All kinds of marine codes, flags, etc.

Details of hundreds of cruise routes, description of ports and channels, marine signals, codes, flags, etc.

Characteristics of lights, buoys, fog signals, etc.

Numbering Law—How to obtain numbers for your boat.

What to do in a storm—to prevent collisions.

How to organize a yacht club—Constitutions and By-Laws and many other helpful features.

### Send for Your Gift Copy Today

"The Yachtsman's Guide" sells regularly for a good round sum, which we are willing to forget if you take advantage of this special offer of MoToR BoatinG for one year at \$3.50 with "The Yachtsman's Guide" as a gift. You would pay \$4.75 for a year's single copies of MoToR BoatinG, anyway. So the book costs you nothing at all, and you save money on your subscription besides.

— — — — — MAIL THE COUPON NOW — — — — —

MoToR BoatinG, Dept. 429,

57th Street at 8th Avenue, New York, N. Y.

I desire to take advantage of your Special Offer and get a copy of "The Yachtsman's Guide" as a gift, with my subscription to MoToR BoatinG for One Year at \$3.50, saving me \$1.25.

Name .....

Address .....

City..... State.....

(Remit now and an extra issue will be added to your subscription.)

Postage outside of U. S. and Canada \$1.00 extra a year.

### Boating On Arctic Waterways

*(Continued from page 148)*

lunch when a sinister bank of lightning-shot nimbus, swelling and spreading like the smoke-cloud from a burning oil-tank, darkened the northern sky. The formation was not cyclonic, but it did not need a meteorological expert to know that those sagging pot-bellied clouds carried an annihilative weight of solid water. I never saw an Arizona cloudburst sneaking on its prey with heavier bombs in its belt.

That was a right merry little race I had for cover. The first stacks I had raised turned out to belong to the Provincial Penitentiary, some distance west of town. There was undoubtedly good shelter to be had there, but a mile of marshy bottoms cut it off from the river. A sooty pall of cloud quenched the glad gush of noonday sunshine as I headed under the highway bridge and it was in the brooding duskiness of twilight that I turned in to attempt a landing against the piled and rip-rapped bank below a high-towered brick building standing at the end of a little strip of park which ran along the river-front. The half-ruined platform of what had once been a steamer-landing was in sight a few hundred yards below, but with the first sizzling drops beginning to blister the surface of the water I was keen on docking as close as might be to that sheltering roof above.

The current of the narrowed river—constricted by man-made works in a single channel for the first time in a hundred miles—swirled swiftly against the sharp granite rocks of the rip-rap as I nosed in for a landing. When the tilted block upon which I jumped turned over and let me slide down into the water it looked for a moment as though I had messed the operation and would have to swim down with the boat and try to work it in against the old landing below. Fortunately I kept a precarious hold by clawing the nearest rocks and before the drag of the painter had pulled me all the way into the river a couple of husky chaps in boats and slickers, scrambling down over the piling, had brought in the runaway boat and put an end to my worries.

Grabbing up my gun, cameras and a few other odds and ends which could not be protected under the spray-hood of the moored boat, we climbed up over the river-wall and scampered in through the back door of the Prince Albert Fire Hall just as an ear-splitting thunder-bolt ripped out the bottom of the cloud-tank above and deluged the earth with an almost solid column of falling water. That was the opening salvo of a storm—or rather series of storms—which, continuing with only slight interruptions for five or six weeks, wrought uncounted millions of damage to what would have been the greatest grain crop in Canada's history.

*(To be continued)*

### A Serviceable Small Boat

*(Continued from page 55)*

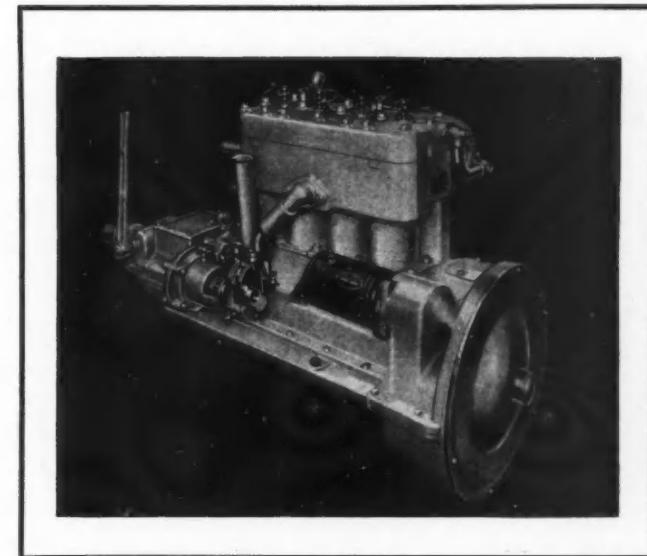
to the side boards, first laying a thread of candle wicking in the joint. The builder should be a little careful about getting the fore and aft bevel of the sides of the transom but leave bottom square to be trimmed off later and it might be a good idea to drive the nails through a half-inch piece laid on the side pieces so that it can be taken apart again and the transom refitted if necessary.

The sides can now be bent in to take the forward transom first shoring out the center at station No. 3 to dimensions shown on construction plan. A rope with a stick for a twister is about the best means of pulling in the forward ends. After the sides and ends are assembled fair up the bottom with a plane and tack on a thread of candle wicking laid in thick paint for water-tightness. Now nail on the bottom, being careful to get at least half the nails in the nailing strip and to leave a small caulking seam. Turn the boat right side up and put in the floor strips, seat risers, seats, and gunwale strips. A  $\frac{3}{4}$  by 4 inch support should be placed under the center seat to the floor board. The floor strips should be tacked from the inside and securely nailed through from the bottom, clinching the nails inside. The nails through the gunwale strip should also be clinched. Caulk the bottom and nail on the skeg and keel strip, fastening through the center floor batten. The rubbing strips at the outer edge should be well nailed through into the sides, acting as a binding strip for the bottom and sides of the punt. Additional strips may be put in between if the builder sees fit. The skeg and keel strip can be in separate pieces. After fitting the oarlock blocks, corner knees, and boring a hole for the painter, your boat is ready to paint.

### WALTER H. MORETON TO SELL ELTOS

The Walter H. Moreton Company, prominent Sea Sled, Hacker Craft, Matthews and Penn Yan dealers, have taken on the agency for Elto outboard motors; H. B. Parker, Elto distributor at Boston, reports.

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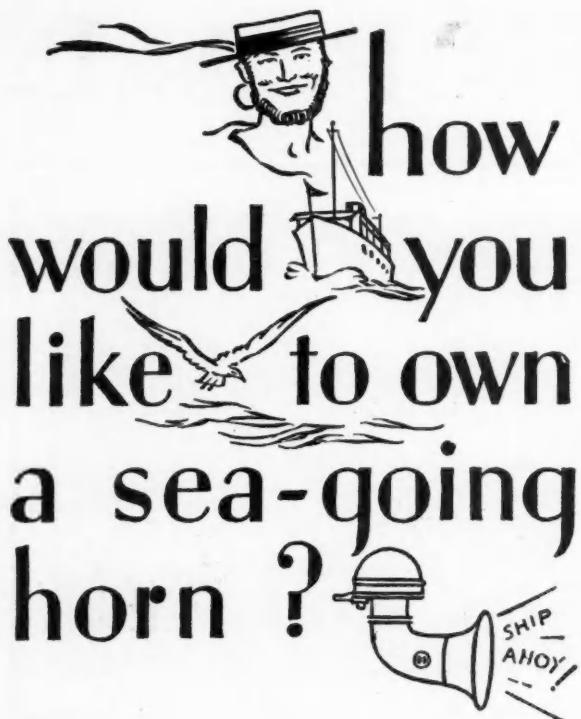
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You will like it for its looks. You will like it for its sound. You will like it for its far reaching penetrating tone. You will like it proudly perched upon your boat. You will like it because it needs no lubricating or adjusting.

And you will like it because it is a Robert Bosch product . . . which means it will give you the same dependability which you know you can expect from Robert Bosch magneto, spark plugs and generators.

Every Robert Bosch horn is marked with the full name "Robert Bosch" and the trade mark shown below.

**P. S.—**If desired, Robert Bosch horns are also available in solid brass under black enamel finish.

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ROBERT  
BOSCH A.-G.

## Accuracy In Records

(Continued from page 104)

The terms in these equations have the following significance:  
 $dt$  = permissible error in timing in seconds  
 $dL$  = permissible error in length of course in feet  
 $dv$  = permissible error in speed record in miles per hour  
 $L_m$  = length of the course in miles  
 $t$  = time in seconds

The derivation of the formulae will be found in the footnote below. To show the application of these equations to actual cases without a lot of arithmetic figure 3 has been prepared. The curves on this figure show the greatest permissible errors in timing and length of course for each mile of length for craft of different speeds if the resulting records are to be precise to within 0.07 miles per hour. The curves are to be used together. Thus if a  $2\frac{1}{2}$  mile course is to be used in a race where speeds of 60 miles an hour are expected the dotted curve shows that the timing must be good to 0.05 seconds per mile and the solid line curve shows that the course must be within 4.5 feet of its theoretical length for each mile. For the  $2\frac{1}{2}$  mile course in question the permissible errors in timing and length of the course will be respectively  $0.05 \times 2.5 = 0.125$ , say 0.13, seconds and  $4.5 \times 2.5 = 11.25$  say 11.0 feet. Incidentally these curves show the utter absurdity of reporting speeds in thousandths of a mile per hour. It is justifiable and sound practice to retain one doubtful place of decimals in records to insure the correctness of the next figure. Thus in records which are good to 0.1 or even 0.07 miles per hour the doubtful hundredths should be shown. To show thousandths however is either to display ignorance or indicate that the hundredths are good, which in the case of our hypothetical  $2\frac{1}{2}$  mile course where speeds of 60 miles an hour are expected would require timing to 0.06 seconds and a course not over 1.6 feet from its theoretical length.

It will at once be appreciated that in meeting the relatively simple and practical problem of insuring records having an error of not over 0.07 mile per hour the course offers greater difficulties than the timing. The curves show that a 2 mile course for outboards, whose maximum speeds are now a little in excess of 40 miles per hour, must be within less than 1 foot of its theoretical length.

This again raises the question of the method that should be used in measuring the length of the course. Should it be measured in a series of straight lines between the centers of the marks, obviously forcing the boats to run a considerable amount of extra distance? Should it be measured on the arcs of circular curves passing through the centers of the marks where the ends of the course are curves defined by a number of beacons or buoys? Or should it be measured on a line lying outside the marks which is assumed to be the line along which a boat would travel when cutting as close to the marks as possible?

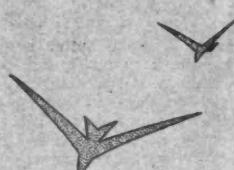
Practice inherited from the days of the sailing yacht has led to the wide spread use of the first method. It appears to the writer to be illogical however where the marks on a course are closely enough spaced to properly define the curve and accurately fixed so they will stay in position. On such courses extra distance is not necessary to insure against shortness caused by the swinging of a mark with the tide on its mooring line or even dragging anchor a short distance. Where the marks are of a character such that it is possible for them to get slightly out of position, there is not much doubt that the method should be used as an insurance against shortness of the course.

Turning to automobile racing, horse racing, and running on the cinder track for guidance on this point it is found that the third method of measuring the course length is universally used. The length of an automobile track, such as the Indianapolis Speedway, is measured on a line three feet outside the line of pole. The length of tracks for horse racing is measured in the same manner. Running tracks are measured on a line eighteen inches from the pole. Furthermore in the case of the automobile track the pole line on the curves is taken as the bottom of the super-elevated or banked portion of the track and not as the curb of the level portion which may lie ~~in~~ this as a safety zone for disabled or partially disabled cars. In other words the track is made so that a car running at speed can not cut it short, but no attempt is made to have it so that a man could not walk it short or even cut it short a few feet in a car driven at a snail's pace.

For a long time the writer hesitated to recommend the adoption of this third method of measuring the length of motor boat courses. In laying out the permanently marked course at San Diego the second method was used because it was felt to be more accurate than the first and because investigation showed that there was precedent for the use of the method by both the A. P. B. A. and the M. V. P. B. A. The method is however

(Continued on page 154)

# MAYBACH LUERSSEN

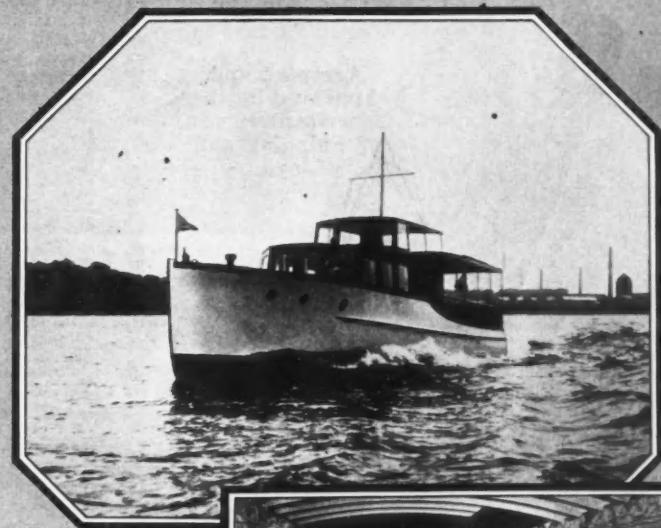


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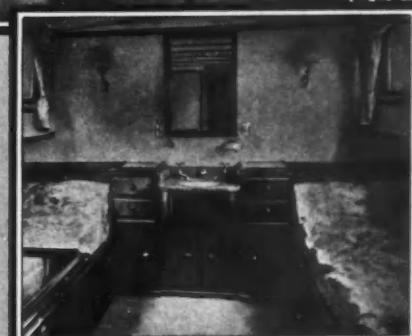
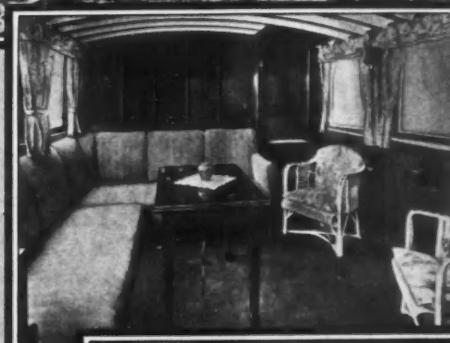
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worthiness have been skillfully combined in  
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Twin screw cruiser—56', 11'6—2-110 h. p. Maybach Motors; speed of more than 18 m. p. h. under load; \$32,500, delivered in New York.

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of Shipping and  
Lloyds

New Style  
No. 2

TESTS have proven that in a sand, mud or other kind of bottom, the Eells Stockless Anchor has double the holding power of any other make of anchor. This is an advantage which alone, at some time, may be the means of not only saving your boat but also human life. The Eells Stockless Anchor is easily handled. It does not trip nor turn over, but holds a steady even strain and beds itself evenly.

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### Accuracy In Records

*(Continued from page 152)*

a compromise between the more accurate method of measuring on a line outside the pole and the time honored method of measuring along a series of straight lines handed down to motor boat racing from the days of sail boat racing. The propriety of adopting the third method rests upon whether or not racing boats actually run semi-circular turns by swinging in an arc around the marks or whether they cut more or less straight from mark to mark. This was a point that could be settled only by observation and accordingly careful observation of the behavior of boats of various sizes, speeds, and classes on the turns of the San Diego course has been made throughout a number of important races. These observations show beyond doubt that boats run the turns in curves and not in a series of straight lines. During the 1928 annual regatta this point was observed from airplanes and a number of aerial photographs were taken of boats and their wakes. One of these photographs accompanies this article. It was found that the boats running the turns in arcs did better than those attempting to cut straight from mark to mark and that while it was possible for a boat to make a fairly straight run from one of the five marks at each turn to the next one she would inevitably be forced well out beyond the course in her run between the next two marks and by so doing would lose more distance than she had gained. There is therefore no reason why motor boat racing should not adopt the method of measurement found so satisfactory in automobile and horse racing, provided always that each turn is marked by a sufficient number of beacons and the radius of the turns is not too long. By adopting this method of measurement on permanently marked courses, or on temporarily marked courses where fixed pole or pile beacons are used as marks we would insure records made on closed courses, that is on courses where the start and finish lines are at the same point, approximating in accuracy the records made on the measured mile. This is the standard of accuracy which we should attempt to reach in our records of speeds made in competition. Records should be *accurate*. It is not enough to guard merely against the exaggeration of speeds.

Where anchored floats or buoys are used as marks, there is little doubt as has been said before, that the course should be measured on straight lines as an insurance against shortening. It may be argued that this is putting a premium on the fixed mark course. Such a premium is however a premium on accuracy and precision and there are no two things more worthy of a premium in this whole question of the value and dependency of racing records.

The writer would therefore suggest the adoption of the following specification for race courses.

"Race courses shall be laid out by a competent surveyor whose qualifications shall be passed upon by both the local committee and the sanctioning association. The surveyor shall furnish an affidavit as to the length of the course, the precision with which it was laid out, and the fact that the marks were in position at the time of any race in which a record is claimed. Measured mile courses shall be either one nautical mile or one statute mile in length and shall in either case be within three feet of their designed length. The ends of measured mile courses shall be defined by ranges set perpendicular to the line of measurement. The length of closed courses shall be measured in a series of straight lines or chords connecting the points which are the theoretical positions of the marks; except that on courses having circular curves of a radius of not over 500 feet defined by fixed beacons or pole marks placed so that the arc between two adjacent marks does not subtend an angle of over 45° the length shall be measured on circular curves or arcs lying three feet out from the marks. The course shall not vary from its designed length by more than 4 feet for each mile of length."

The reason for requiring that the ranges on measured mile courses be perpendicular to the line of measurement is explained by figure 5.

The layout of an accurate course is naturally a job for the professional surveyor and detailed instructions for doing the work would be out of place here and will not be given. A few hints as to the general methods found economical in laying out courses might be useful however.

In some cases it may be economical and practical to do all the surveying on shore and to set ranges at the intersections of which the marks may be readily located. Such procedure is of particular value where floating marks or buoys are to be used because their positions can be readily checked by the ranges. In water where floating drift, particularly kelp, is encountered it is almost impossible to check the positions of buoys too frequently. It may even be necessary to do this several times in a single day's racing. The position of buoys should at all times be checked.

*(Continued on page 156)*

APRIL, 1929

Still  
Another  
Reason

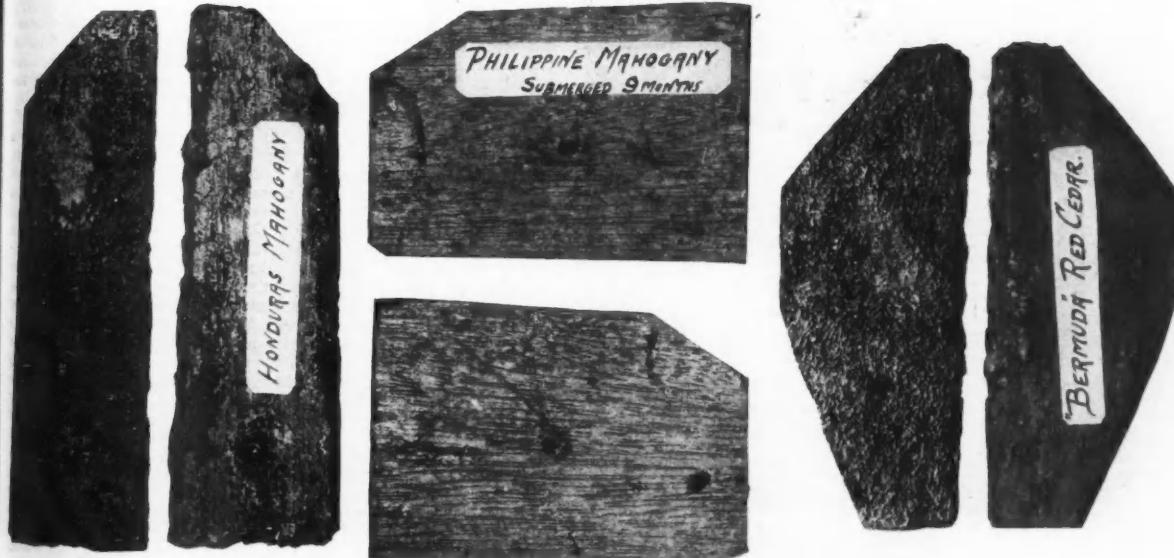
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It Appears to be Less Affected by the Teredo Than  
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These are unretouched photographs of the samples sent us by Mr. Cresdee, and referred to in his letter reprinted here.

All Boat Builders and Owners are aware of the damage which the EVER PRESENT and DESTRUCTIVE TEREDO (SHIP WORM) can do, even in a single season, unless carefully watched.

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(This testimonial comes to us unsolicited from a satisfied and loyal customer. The actual samples may be seen at our office or we will send full sized photograph on request.)

Mr. Cresdee says: —

Dear Sir:

I think it my duty to reply to your circular just received. I wish to state that I also had a letter from the Mahogany Association, Inc., to which I paid no further heed, as I have satisfied myself that for Boatbuilding, of which I've had over 30 years practical experience, and have used most all the various lumber for that purpose, that it excels all others for use under water in Tropical climates, where Teredo (ship worm) does so much damage to submerged wood. I ordered a few hundred feet of your Selected Red Mahogany to build a 21 foot Speed Boat. When I received it, I decided to test it with other wood by submerging it in still water with a muddy bottom for 9 months (March 1st to November 30th, 1927) and I am forwarding the result to you, if it is of any use for advertising; I have used it on several occasions and I know you have had orders through that test. One I know is very satisfied, Mr. Williams, who is about to order more, and three others I sent the order to you myself. Whether you still call it "MAHOGANY" or "INDOAKO," I shall still boast it.

Yours Faithfully,

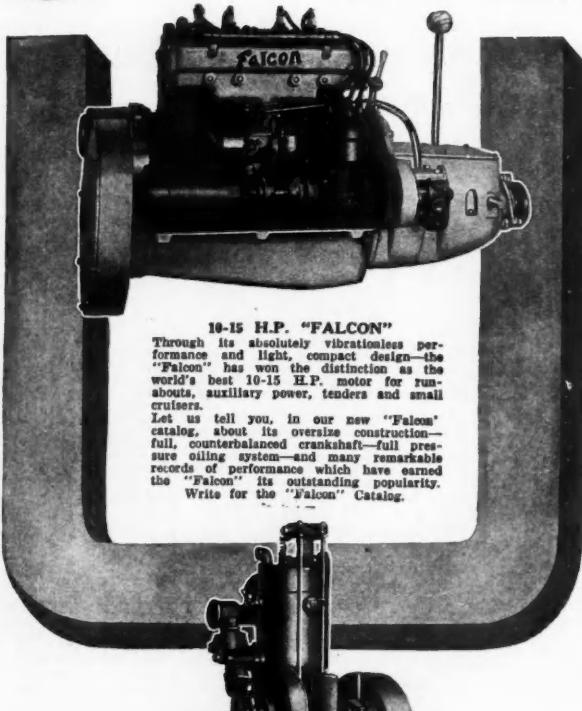
(Signed) A. G. CRESDEE.

P. S.—Please send me your price-list.

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*Advertising index will be found on 3rd last page*

## Accuracy In Records

*(Continued from page 154)*

events be checked at the beginning and end of each day of important racing. Floating buoys are however at best an unsatisfactory and essentially inaccurate form of race course mark. When much racing is done they are furthermore uneconomical on account of the cost of placing and maintaining them and checking their position with sufficient frequency to insure accuracy.

Figure 4 shows diagrammatically a method which can often be used with success and economy in laying out a course, particularly if permanent beacons or pole marks are to be used. The triangulation stations are first of all located ashore by the usual methods. In many cases existing triangulation stations of the Coast and Geodetic Survey or the United States District Engineer can be utilized. In laying out a course on tidal or navigable waters the District Engineer should always be consulted as he can often give information which will save the surveyor time and the regatta committee money.

After locating the triangulation stations the temporary marks  $C_1$  and  $C_2$  should be set up. The mark  $C_1$  should be a heavy pipe or a light pile driven firmly into the bottom. The other temporary mark,  $C_3$ , may be lighter but must be strong and firmly enough driven into the bottom to stand securely. The mark  $C_3$  is arbitrarily placed at a point selected as the center of one of the semi-circular turns; while  $C_2$  is set as near the center of the other turn as the position can be judged by such simple and quick methods as a graphical solution of the three point problem with the sextant and three arm protractor. The distance between  $C_1$  and  $C_2$  is then measured with precision by triangulation from the shore. With this distance known to within 0.1 foot it is a simple matter to place  $C_3$  at the true center of the second turn. This is done by measuring from  $C_1$  with a cork line—a graduated steel wire buoyed with seine floats—and setting  $C_3$  in line with  $C_1$  and  $C_2$  and the proper distance from the latter mark to place it at the true center of the second turn. With  $C_3$  thus accurately located  $C_3$  may be pulled out and the work of setting the actual mark beacons proceeded with. These are located from  $C_1$  and  $C_3$  by means of the cork line and a sextant. After the beacons are placed, their positions, or at least the positions of the ones marking the point of curvature, point of tangency, and the extreme end of each turn should be checked by triangulation. When all marks have been set and checked  $C_1$  and  $C_2$  may be removed.

Single piles that stand eight feet or so above extreme high tide will be found to make very satisfactory marks, especially if a barrel painted white is inverted over each pile and fastened securely in place. In waters infested with teredo, limnoria, or other marine borers the piles should be creosoted to withstand their attack. The depth to which it will be necessary to drive the piles into the bottom will vary with local conditions but it will rarely exceed 20 feet and a penetration of 12 feet into a good firm sand will be sufficient.

It is difficult if not impossible to give an estimate of the cost of a permanently marked course which will be of any general applicability to various parts of the country. The surveying may cost anywhere from \$150.00 to \$500.00 depending upon conditions such as the availability of existing triangulation stations and so forth. Piles forty feet long should cost from \$16.00 to \$30.00 each and on account of the accuracy with which they must be located it will cost about \$25.00 each to drive them. If creosoted piles are necessary they will cost about twice as much as untreated ones to buy but no more to drive. The figures above apply to untreated piles. Creosoting should be done in accordance with applicable specifications of the American Wood Preserver's Association, and should be not less than what is known as a, fourteen pound treatment. The total cost of a permanently marked course like the one in San Diego Bay should therefore not run over \$1,000.00 to \$1,200.00 and in many cases will be considerably less. Comparison of this sum with a fair estimate of the cost of surveying and maintaining a course marked with buoys for say six races a season for several years will show that there is economy in the permanent marks, not to speak of their accuracy. There is also the added advantage that it is always possible to take a boat out and find what she is doing in her tuning up trials if a permanently marked course is available. The writer firmly believes that the day of the permanently marked course is at hand and that within a few seasons the running of an important race on a makeshift course marked with buoys will be just as unthinkable as attempting to hold a horse race around several designated city blocks.

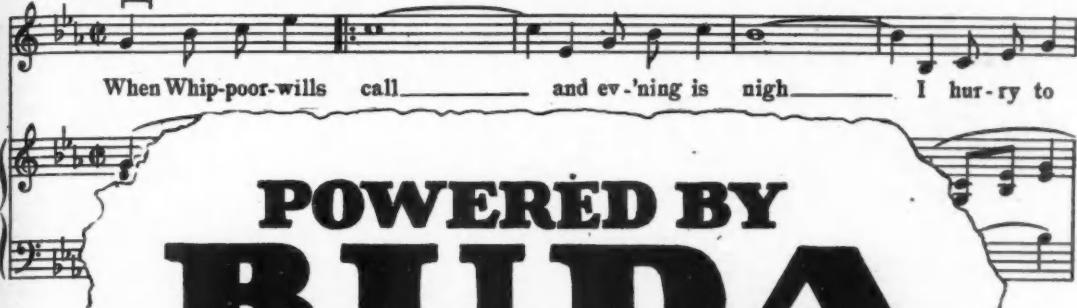
A word in closing as to the necessary preliminary steps to be taken in securing permission to establish a permanently marked course in navigable waters. It is futile to ask permission to put such a course in a channel or in any locations where the

*(Continued on page 158)*

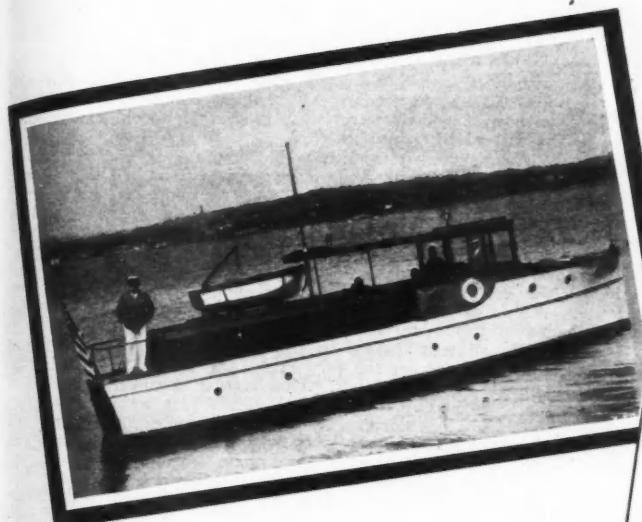
APRIL, 1929

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CHORUS



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for Details*



## Accuracy In Records

(Continued from page 156)

marks will be a menace to navigation. There are many bays or bodies of water, however, where the mark beacons of a permanent course will not be in the way and where the United States Engineers and the Lighthouse Service would undoubtedly permit their location. Permission for the placing of the marks should be secured from both the District Engineer and the Superintendent of Lighthouses of the district in which the course is to be established. These officials are in a position to designate the mark beacons as privately placed auxiliary aids to navigation and to have them entered on the charts of the Coast and Geodetic Survey and the Hydrographic Office as has been done in the case of the mark beacons of the San Diego course.

(To be continued)

Note: This is the first of a series of three articles by Lieutenant Commander Angas on the subject of accurate records. The second which deals with timing with stop and split second watches will appear in an early issue.

## From Landlubber to Sailor

(Continued from page 43)

anchor. We had not made such good time across Massachusetts Bay as on the way out, but we had rougher water, and anyhow, I was thankful to have that big open stretch behind us instead of before us.

The next morning it was blowing a gale and raining. As I sat in the cockpit bemoaning our fate, I noticed that we were getting closer to shore and that we must be dragging our anchor right in the harbor. I started the engine, pulled the anchor up short without the least difficulty, moved up into the wind and dropped the anchor. By getting a sight on two points on shore I found that we were still dragging, and I repeated the process several times till I got a good holding ground. With this maneuvering I had materially changed our position, but of this more later.

We all went ashore in the dink to buy our usual line of supplies, inspected the very interesting town and looked at the famous Plymouth Rock. This commemorates the landing of the Pilgrims in 1620. The Rock is just a big water worn pebble on the beach, cracked in the middle and repaired with cement. Over this pebble is a beautiful granite structure to keep the rain off. You enter the granite structure and look down at the only pebble on the beach. At high tide the water from the ocean washes in around the pebble through an iron grating, so that theoretically the setting is just as it was in 1620.

Personally, I think the whole story of the Pilgrim Fathers should be taken with a grain of salt. I think the Mayflower undoubtedly ran aground several miles from Plymouth, that a few sailors came rowing and wading over the flats to Plymouth, that most of the passengers followed at the next low tide in rubber boots, that eventually the Mayflower was floated off and returned to England without coming within miles of Plymouth Rock. Probably the skipper, to maintain his reputation, pointed out the pebble to the admiring Red Men and said, "This is where I landed the big sailing canoe of the brave Pale Faces. She draws eight feet, but I who know everything was able to sail her right to the rock so that the Pale Faces could step off with dry feet." Two hundred years later Uncle Sam discovered the channel and planted buoys. Three hundred and seven years later Folly followed these buoys to within 500 yards of the rock. Before the buoys were planted, nothing but the most expert snake, heavily primed with fire water, could possibly have followed this crooked channel.

In the afternoon the rain stopped, the wind went down and we had a grand swim off the boat. In the evening we had a good supper and went early to bed. For the second time I awoke at midnight to hear strange creakings and to note that Folly had a preceptible list to starboard. I grabbed a flashlight and an oar and discovered that the boat was aground on the edge of the channel with very deep water on the starboard side and about two feet of water on the port side. I realized that if the tide went out far enough we would be upside down in the channel, and I had not the faintest notion how far the tide still had to go.

In my faithful but thin pajamas I climbed out on the deck outside the cabin and hung as far out over the port side as I could, yelled at my wife to move all the kids and everything else she could over to the port side and get over on that side herself. By this shifting of cargo Folly slowly came over and listed to port. I now knew that the worst that could happen

(Continued on page 160)

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*Autopulse Improves the Performance of Any Motor*



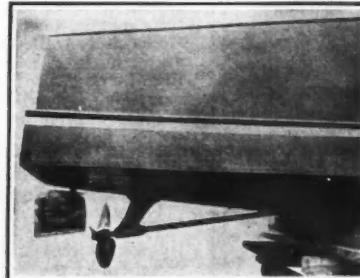
Photo shows 28-foot Hacker Dolphin De Luxe, one of the season's most popular boats, doing 40 miles per hour with eleven people aboard

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## From Landlubber to Sailor

(Continued from page 158)

would be that we would lie over on our port side in soft mud instead of rolling down the bank of the channel. My wife then looked up the tide tables and found that the tide should be just on the turn and ought to be rising soon.

I have been known to make errors in looking up tides, so we remained as we were in fear and trembling. After about half an hour I found by sighting over the deck at a distant light that Folly was slowly beginning to right herself in spite of all the weight on the port side. For once the tide kept its date with the tide table. I went thankfully back into the cabin still in my pajamas, with my teeth chattering with cold and my good wife made me the best and hottest cup of coffee I have ever had. I consider this my seventh valuable lesson for a landlubber who wants to become a skipper; when you anchor for the night, make sure that your boat cannot swing around in any wind or current to where she will be aground at low tide.

On the 16th we got under way early and followed the buoys down the crooked channel with a fair tide. The sea was moderately rough, but it did not bother us a bit. We entered the Cape Cod Canal, took on gas and paid toll. We were told that we would have to wait for a tow going west and follow that through the canal. A tug with three barges came along and we followed them against the tide at what seemed like a snail's pace. I could hardly run the engine slowly enough to keep behind, and from time to time had to throw out the clutch and race the engine to clear the cylinders.

After we had gone more than half way through the canal a big yacht overtook us, and I supposed that it would have to trail behind. Instead of that it immediately left us suddenly wallowing in its wake, raced past the string of barges and disappeared in the distance. I gathered from this that it is not always necessary to do what you are told by an ancient canal toll keeper, so I speeded up, passed the tow and was soon out in Buzzards Bay. We had lost at least half an hour by being good and doing what we were told.

At 2:37 P. M. we had entered another strange harbor and tied up at the New Bedford Yacht Club in South Dartmouth. We took on supplies, telephoned to some friends, went out into the harbor and dropped the hook for the night. We then rowed ashore, visited our friends, and were taken in a frighteningly fast automobile, making at times as much as thirty miles an hour, to see the last of the old whalers.

This is the square rigged Charles W. Morgan, and it is the most interesting thing we had seen on the whole trip. In the old days the boat was used for whaling voyages out of New Bedford. Eventually she was bought by a group of thirty-three people, towed into a channel dug in the land of Colored Green at New Bedford and the channel then refilled with sand. At high water it looks as if she were afloat although she is firmly imbedded in the sand. She carries a skeleton crew, everything is kept in a perfect state of repair, her running rigging is entirely renewed each year, and she is open to the public. The sails were all furled when we got there, but on fine days they are unfurled and set as if the good old ship were actually sailing. To all intents and purposes she might be ready to start after whales at a moment's notice.

We went all over the ship and saw the instruments used in capturing, cutting up and handling the whales. We saw the try works where the blubber is heated to produce the oil. We were shown the enormous casks in the bilge where the oil is accumulated during the voyage, and the crowded quarters where the crew lived and had their being during the one or more years that a voyage lasted. We saw the more pretentious quarters of the officers and the private stateroom of the Captain. This is fitted with a most luxurious bed suspended so as to swing with the motion of the ship. Over the head of the bed is mounted an illuminated compass upside down, so that the Captain can lie at his ease by day or by night and know whether the helmsman is on the job or whether he needs a dose of cat-o-nine-tails. On deck there is a very sturdy armchair on slings used to lower the Captain's wife over the side into a boat.

After seeing the whaler, we went to the home of our friends had supper and spent the evening. When we rowed back to Folly in the dark, the flags were still flying and there was no riding light. This is a frightful breach of nautical etiquette but it did not seem to bother me in the least. I am afraid that I am more of a motor boatman than a yachtsman. The kids were most anxious to have me fitted out with white ducks and a captain's hat instead of my usual costume of flannel shirt without necktie, or the top of an old bathing suit, an old pair of khaki trousers and I never wore a hat at all. At sea I looked like a tramp, ready at all times to crawl into the life

(Continued on page 162)



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No other marine engines have ever achieved such rapid popularity as the two power plants which marine engineers have designed under Chrysler auspices — the Chrysler Imperial and the Chrysler Royal.

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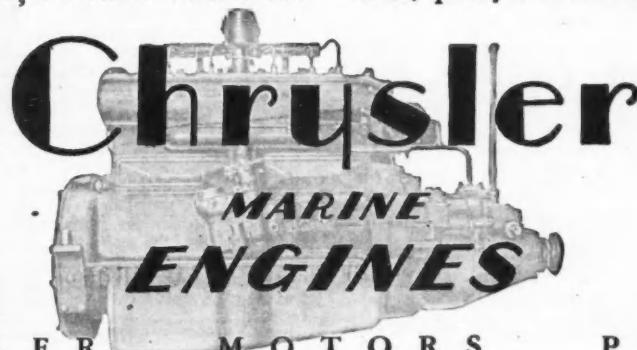
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## From Landlubber to Sailor

(Continued from page 160)

or tinker with the engine, and the rest of the family looked like semi-respectable people on a holiday. When I went ashore I wore a fairly decent suit of store clothes and my wife made some mysterious change in her appearance and put on a smart hat which she kept hidden while at sea. Several hours before making a port, my eldest would rig himself out in a spick and span sailor suit with a little white hat, but this was our only pretense at being yachtsmen.

The next morning there was a dense fog so we took life easy, loafed, read, wrote letters, went ashore in the dingy, swapped lies with neighboring yachtsmen marooned in the fog and spent a quiet Sunday morning. At noon the fog showed signs of lifting a bit, so we timidly got under way. We made our courses O.K. and picked up the various buoys in spite of the fog. About 3:00 P.M. a fresh breeze sprang up from the south, clearing away the rest of the fog and kicking up quite a nasty sea. This cost us a valuable jug of drinking water which took a swan dive to the cabin floor while Folly was biting into a chop at the bow and wagging her tail to a swell at the stern. We were opposite New Haven, so we headed for the lighthouse and then followed the buoys into the harbor. Here we wandered around among all kinds of big ships like a little dog in church, till we finally located the New Haven Yacht Club and tied up.

The Yacht Club was very near the entrance to the harbor and the waves came rolling in with considerable force. We had difficulty in taking on gas and supplies and holding the boat off, while my wife telephoned to some friends to come down and call on us. We found that there was a vacant mooring so went out and tied up there for the night. Unfortunately the waves in the harbor came around a corner and the wind held us broadside to the waves. Folly rolled frightfully, my wife had the time of her life trying to prepare a little supper, and I led the life of Reilly on the slippery cabin roof trying to rig up the riding light without going head first into the damp and troubled waters. At the same time we both hoped the kids would not be rolled overboard, but we had no time to pay much attention to them.

In the middle of the confusion our friends came to pay us a formal call in the yacht club tender. We welcomed them aboard and rolled around in the cockpit with them, after we had sneaked into the cabin and lashed fast the beginnings of our supper. Although hungry, we were very glad to see our visitors and they stayed with us till after nine. By that time we were not rolling so much and managed to get a good supper and go to bed. The next morning we got under way after breakfast in a rain storm. Later the rain stopped and was followed by a light fog. The fog lifted, but there was an unmistakable squall coming. We laid a course for Stamford Harbor and tied up to a Stamford Yacht Club mooring just as the squall struck. It blew great guns from the north while we were snug in the harbor eating lunch.

After lunch the squall was over and we pulled out of Stamford. We had an uneventful trip the rest of the way down Long Island Sound, went down the East River with a full tide for once in our lives and got down to the Battery at 5:30 P.M. By that time it was dark, another storm was brewing and the rest of the gloom was made up by soft coal smoke from New York City and the harbor tugs. I had no chart of the harbor and had always depended on daylight to see where I was going. The tide carried us far off our course, and finally I did not know whether we were going or coming. We passed close to a numbered buoy, but having no chart, it told me nothing. I did not know whether we were bound for Albany or Liverpool. I thus learned my 8th valuable lesson—never start a cruise unless you have on board an absolutely complete set of charts ready for all emergencies.

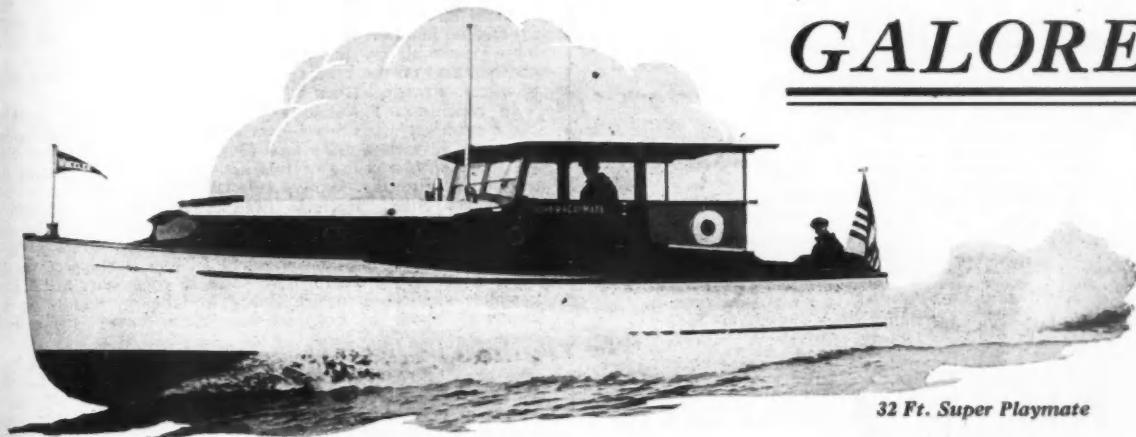
It soon began to pour, the fog came rolling in from the sea, the searchlight just made a white wall in front of us which was much worse than darkness and I had to open the windshield for better visibility. I hate to have to admit this, but I finally pulled in towards some lights on shore and asked a man on a tug which was the best road to the harbor where we would be. I suppose this is a terrible thing to admit, but this is a true story, and I am telling the bad with the good.

My faithful wife got out on the bow in the rain, I tied a cloth over the binnacle light so that I would not have that in my eyes, and, with the aid of my wife and the tug boat's instructions, we finally crawled into our home port, completely bewildered by the rain, fog, brilliantly lighted boats dashingly at full speed through the fog, and no chart to tell us where it was all about. We tied up at 8:05 daylight saving time, had supper and turned in while the rain came down in torrents.

(Continued on page 164)

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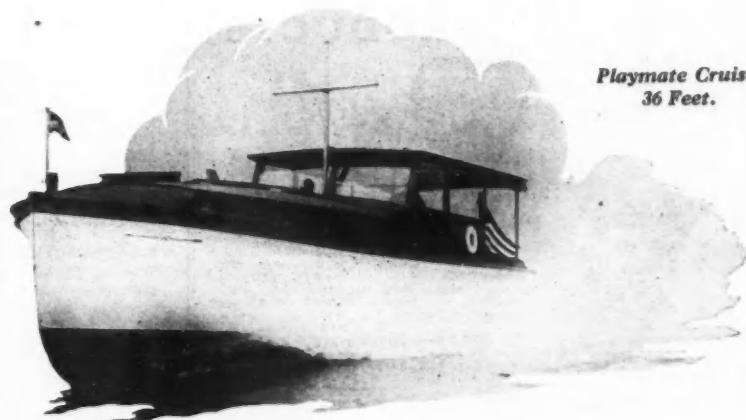
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### From Landlubber to Sailor

(Continued from page 162)

The next morning we were as good as new and ready to start off again. Unfortunately, the trip was ended, and we went home by automobile. We had used 136 gallons of gasoline for the trip out, 120 for the trip back and a total of 418 gallons for the season. A year ago my dread had been that I might have to anchor somewhere or that I would be unable to find a familiar harbor in which to tie up for the night. This year with my improved health I thought nothing of anchoring, and on the return trip we purposely spent every night in a new strange harbor without the least difficulty.

In conclusion I should say that you must not expect to become an expert skipper overnight, but if an inexperienced semi-invalid with a wife and four very young children could get away with a cruise of this nature, it would be a cinch for any normal healthy family, especially if the children were a few years older. Extreme caution, carefully mixed with a little ordinary common sense, is the main requirement for such a cruise. Personally I know that I still have a lot to learn and that I could not be considered an expert skipper. On the other hand, I feel that I have made a good start and I have complete confidence in my ability to take my family on any coastwise cruise in Folly at any time during the summer months.

It is my firm impression that you should not expect business-like dealings from boat people until this business has had the rough corners polished off a bit more. This applies to sellers of new and second hand boats as well as to the people who store and repair boats. If a boat person quotes you a price, specifies a time of delivery or assures you that something has been all fixed up, you should take this with the proverbial grain of salt; and hold on hand an ample reserve of cash, time, patience and ability to thoroughly inspect the finished job. It is possible that a storm of protest will be caused at these remarks by people in the boat business, and boat buyers who have had better luck than I have. If the latter class now writes a series of articles to prove that my pipe is out, I will feel that I have started something well worth while. I have only recounted my own personal experience most truthfully, and I feel that we should all like to hear the other side of the story if there be one.

Automobile experience is a valuable asset to an embryo boatman, but no landlubber should buy a new or second hand motor boat without seeking the advice of an experienced boating friend. You will gain everything and lose nothing if you take a congenial and experienced friend with you on your first cruise.

It costs a lot more per mile to own and operate a motor boat than it does to run an automobile, but you can carry more people in far greater comfort, there are no hotel bills, and it is an experience you will never regret. There can be no comparison between the invigorating and healthy joy of cruising out on the great deep; and driving an automobile among thousands of similar automobiles in single file through miles of dust, traffic cops, carbon monoxide, winking and blinking traffic lights, crashing trucks, stop and go signs, reckless drivers willing to take a chance on blind turns, suicidally inclined pedestrians and a constant terror of doing something you shouldn't and landing in jail.

On land you are among enemies and in constant danger from red tape, speed traps, constantly changing local traffic rules, fines and hundreds of hired minions of the law trying to get you on some technical charge. You must be constantly on the alert not to break some local rule. If you have accidentally tripped over some technical red tape you must be much more alert not to be caught with the goods. As the number of automobiles increases these conditions can only get worse till some of us find relief in the air or on the sea.

In regard to using the air to escape from these conditions, could only give you hot air on the subject, and you would be all up in the air after reading my effusion. In regard to the sea, I know that all the people you meet will be friendly and ready to give you a helping hand in time of trouble. There are no sea cops everlastingly trying to get you on some technical charge. The only danger comes from Mother Nature and she is most kind and considerate in giving ample warning to those who will stop, look and listen, before she loses her temper and lets loose her wrath on those who will not heed her kindly warnings. The only things required are caution and common sense. The red tape and rules of the road were mostly in use in 1942 and have been in force ever since. The rules are simple, laid down according to ordinary common sense, and they do not change every week in every different locality. Finally, I cannot do better than to quote a well known advertisement, "Washable, dryable, durable, pliable. Pardon the English, isn't it tryable?"

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## FOR THESE REASONS

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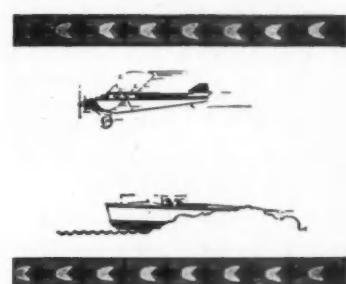


This is the natural result of a hull designed to reduce water friction and give the utmost in smooth, well balanced riding quality. Dart Runabouts are powered with the leading American marine motors and will develop a speed of thirty-

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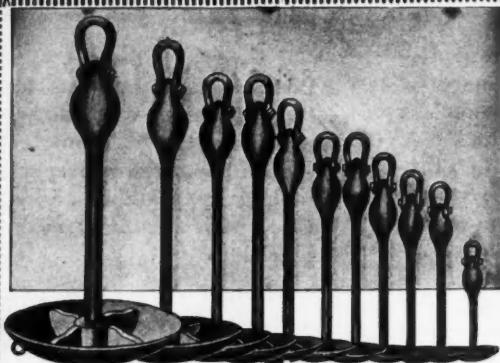
Dart Runabouts are built in three lengths, 22½ ft., 26 ft. and 30 ft. The two longer models are obtainable in either open or sedan design and there is a choice of runabout or speedster type in all three models.

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1	1 1/4"	3'	25	100	16.30
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3	1 1/4"	3' 9"	38	165	25.65
4	2"	4'	44	200	28.40
5	2"	4'	50	230	31.85
6	2 1/4"	4' 6"	62	265	37.40
7	2 1/4"	5'	71	300	42.30
8	2 1/4"	5'	100	400	52.70
9	2 1/4"	5' 6"	125	500	65.85
10	2 1/4"	6'	150	600	79.05
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### What the Novice Should Know

*(Continued from page 51)*

Stability is greater due to the lower center of gravity and decks at the side of the cabin with a rail on the cabin top to hold on to, make it an easy matter to go forward in a seaway. The forward deck, where ground tackle is handled, is nearer the water and this job is consequently easier. The cabin top in this model with deck space at both bow and sides provides abundant and comfortable space for a large day party. As there is less obstruction to the helmsman's view, the trunk cabin is at a slight advantage in the matter of ease of picking up moorings and making landings.

Taking up the disadvantages of the trunk cabin, we find first that the lower bow and reduced freeboard combined with weaker construction are points against its seaworthiness, while the seam between deck and cabin side has a tendency to leak. While construction is weaker it is at the same time more complicated, and cabin space and headroom are reduced.

It will be seen from the above discussion that the arguments pro and con are strong enough to give each type its supporters and it remains for the individual to decide for himself which style appeals to him. Nor must it be supposed that it is impossible to overcome most of the faults mentioned. Hatches, skylights, ventilators and forward decks have already been mentioned in connection with the raised deck type. Oftentimes the ventilation problem is successfully solved by combining the two types by placing a low trunk on a section of the raised deck or by cutting away a portion of the deck at the side, which permits of windows and a lowered deck at this point. In effect, it amounts to running the raised deck into a trunk cabin with the tops of both continuous. There is much to recommend this particular construction, especially when it is used in conjunction with a deck house. As far as weakness in trunk cabin build is concerned, this is largely a relative matter as the construction of thousands of successful trunk cabin boats proves; and there is no reason why they cannot be built amply strong for all conditions if care and good material are used. Appearance too is another matter of personal taste and either type can be made to look well if properly designed.

There are a few modifications of the above types but basically they can be grouped under the two mentioned. Extra cabins are sometimes fitted aft or amidships making the double cabin type, and deck houses are added for protection in steering. Bridge decks involve the use of an elevated deck from which the boat is controlled and it is customary to use these in conjunction with a deck house with the engine compartment beneath. This, of course, is best adapted to the larger craft and could hardly be considered for the 30-footer.

Coming to the runabout class, we find that this is a model which has been developed to enable a person to make short day runs at moderately high rates of speed. It is not intended primarily as a sea boat although many of them have made enviable records in negotiating very rough water. Ordinarily the only accommodations for passengers are in the form of seats, and overnight trips are hardly possible.

The modern trend in runabout design is to provide in addition to the open hull, models with sedan tops which give complete protection from the weather, a very desirable feature when traveling in a choppy sea at high speed.

The purely racing craft is the last type of motor boat classification. Here we have a comparatively frail hull, which, on account of its lightness, special design and high power, is capable of extreme speeds. Like the other models its use is restricted to one particular purpose, and while it is able to provide plenty of thrills as a pleasure or racing boat, it would not prove very successful at the jobs for which the cruisers and runabouts are intended. The hydroplane is the type generally found today in the racing class, superseding the old displacement model, the speed of which is more limited than that of the hydroplane. These terms—hydroplane and displacement boat—are not as formidable as they may sound, referring merely to two different types of hull design, and they will be explained more fully a little later on.

While we are concerned here primarily with motor boats in particular, the beginner would undoubtedly like to have a general idea of the various types of sail boats which he is likely to encounter. The classification here must be made on the basis of the way in which they are rigged—the number and kinds of sails—rather than speed and the purpose for which they are intended, as in the motor boat group. We find that the principal kinds of sailing pleasure craft are the cat boat, sloop, yawl, ketch, and schooner. Of these the cat boat and sloop have a single mast, the yawl and ketch two masts, the schooner generally two or three (although they have been built in commercial types with as many as seven masts).

Of these the cat boat is by far the simplest. It has a single

*(Continued on page 168)*



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### What the Novice Should Know

(Continued from page 166)

stout mast placed in the extreme bow and all its canvas spread in one sail. It has the great advantage of simplicity but is proverbially hard to handle in a following sea, that is, when the sea is running in the same direction as the boat.

In the sloop rig the single mast is moved back from the bow and a small triangular sail known as the jib is carried ahead of the mast. Its great advantage lies in its windward ability—that is, it is able to sail closer to the direction from which the wind is coming than other rigs of the same sail area.

Yaws and ketches bear a certain similarity in that they have two masts, the larger of which is forward and they differ only in the position at which the after mast is stepped. In the ketch it is located ahead of the rudder post and in the yawl it is stepped aft. These boats have an advantage over the sloop in that the large mainsail is divided, making the boat easier to handle, although this is secured at the expense of simplicity of rigging. The jib is retained as in the sloop.

The number of masts in the schooner rig varies from two to seven, the usual type having two masts, the foremast (nearest the bow) being shorter than the main mast. The larger commercial boats are often three-masted but the boats with six and seven masts have practically passed out of existence. Very few were built on account of their unwieldiness.

All of the types of sailing craft mentioned above are equipped with what are known as fore and aft sails, which are attached to the masts at their forward edges and to spars called gaffs at the top or head and booms at the bottom or foot. Jibs are also fore and aft sails but are spread from wire stays supporting the mast.

This brings us to a consideration of two other types of commercial sailing vessels, the barque and barquentine, which are old types and are becoming scarcer all the time. In a three masted boat if the mizzen (nearest the stern) is fore and aft rigged and the other two (fore and main) are square rigged, it is a barque, and if the fore (nearest the bow) is square rigged and the main and mizzen fore and aft rigged, it is a barquentine. The term square rigged applies to the old fashioned type in which rectangular sails are spread from horizontal spars attached to the mast at their mid points.

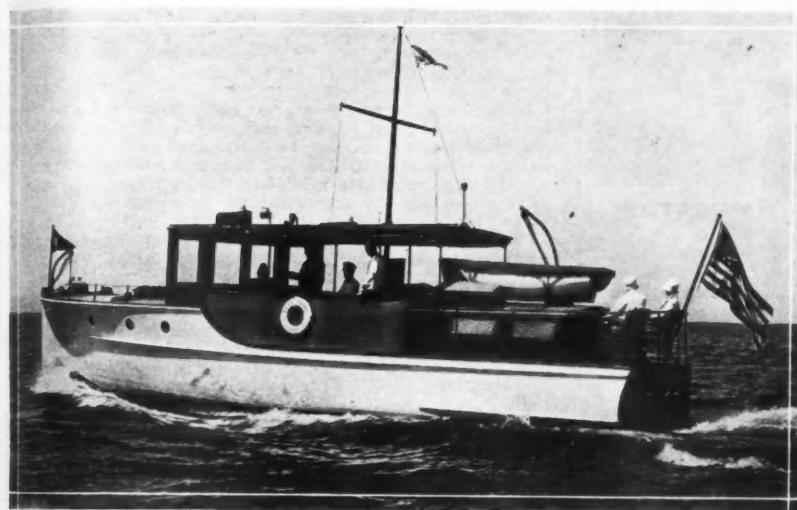
There are of course a number of modifications of the various rigs which we have considered, such as the topsail schooner, the cutter, the brig, brigantine and full rigged ship but the above serves as a good general classification for our purposes. About the only other point we need mention in this connection is the difference in sails of the fore and aft type. We have already spoken of this sail as being attached to a gaff at the head, giving rise to the name of gaff-headed sail. There is, however, another style of fore and aft sail which has come into general favor and that is known as the jib-headed or Marconi rig. The need for a spar at the head is done away with in this type, the sail being triangular in shape and running to a point at the top near the mast.

There is one more type of craft left for us to consider—the compromise model which is neither sail boat nor motor boat alone but a combination of both. Here we have three different general groups depending on the relative proportions of sail to power in each case. Many yachtsmen who go in for off-shore cruising are unwilling to depend entirely on their motor alone or on the reliability of the wind if their craft is a sailboat. This results either in the addition of a light mast or two to carry a small amount of sail on the motor boat in an emergency, the installation of a small auxiliary engine in the sailboat to drive it when the wind fails or the evolution of a third type which might be called 50-50 which attempts to subordinate neither source of power, but tries to secure a craft which will handle equally well under sail or engine.

In considering this question of the compromise, we must start with the premise that it is utterly impossible to embody all the advantages of two different types into one boat. By just so much as we improve the sailing qualities of a hull, to that same extent we destroy its success as a pure motor boat. In the first place the addition of a sufficient amount of canvas to drive the hull under sail alone at a reasonable speed involves the carrying of a great deal of rigging which ordinarily on a small boat is decidedly in the way. At the same time the shape of hull which lends itself best to sail carrying ability is vastly different from that which is most efficient when driven by power. The sailboat, in order to overcome the tendency to be blown bodily sideways off its course (called leeway) must of necessity keep down to a minimum the amount of hull above water which offers resistance to the wind and at the same time must have a maximum bearing in the water in the way of deep draft. Obviously while the pure motor boat intended for cruising needs, relatively

(Continued from page 170)

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### What the Novice Should Know

(Continued from page 168)

deep draft to make it comfortable in a heavy sea, it can not be carried to the extreme required for the sail boat or its practicability is destroyed, both for navigating moderately shallow water and for attaining a fair speed. If the hull is so designed that it will handle well under sail, it is not likely that the handling under engine power will be as satisfactory, and vice versa.

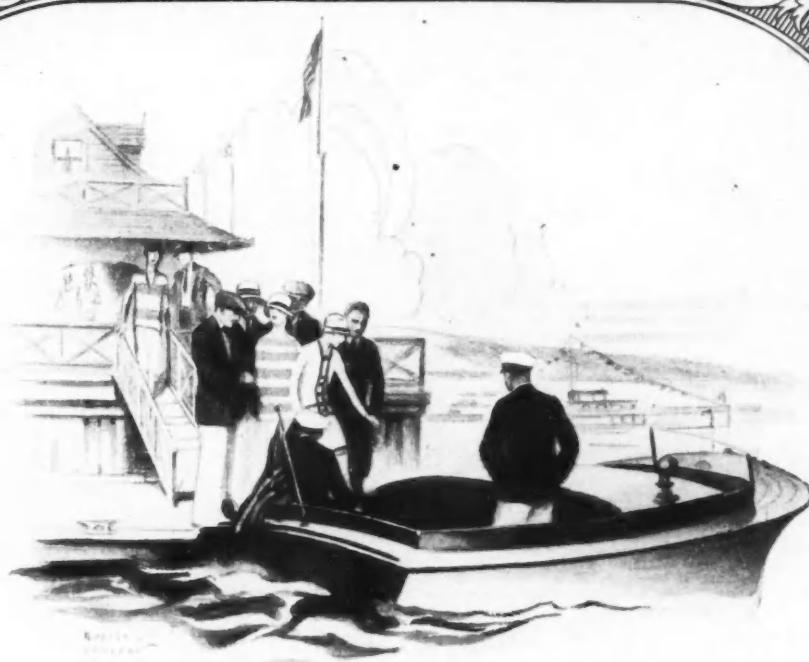
Looking at it from another angle, if we take a well designed sailing vessel and install an engine, no amount of power will give it the speed attainable by a motor boat hull of the same general dimensions. If it is a sailing model capable of considerable speed the extra resistance supplied by the drag of the propeller materially reduces that speed. In the smaller hulls the engine occupies considerable valuable space, which is often an important factor.

It has been observed in a great many actual cases that when an attempt has been made to compromise, the sails, due to the fact that they are rarely or never used, would be neglected, and neglect is fatal to sails and rigging. After a few years it would become necessary to replace this equipment if it were to be relied upon in an emergency and the owner would feel that the expense was hardly justified. So the sails were first left off and the masts left standing. The next step is apparent. The weight and bulk of the extra lumber being carried about proved to be a continual nuisance and the inevitable result was the sawing off of the mast. And so the evolution from compromise to straight motor boat was complete.

Now perhaps the reader has formed the impression from the last few paragraphs that the inevitable result of an attempt at a compromise boat is a flat failure—but let us hasten to correct any such idea. We have merely tried to indicate some of the factors which must be taken into consideration and thrashed out before the owner attempts to convert his boat. Let's put it this way—that the chances for a successful boat are infinitely better if it is the product of a reputable designer who had the compromise in mind when he laid the boat out, than they will be if the owner of limited experience attempts a conversion himself. As a matter of fact, a boatman must have either an unlimited amount of confidence in his skill in handling his craft under all sorts of adverse conditions and in his ability as a practical mechanic to coax a dead motor back to life and then keep it running, or else a supreme faith in a Providence which watches over unfortunate mariners, if he is to make a practice of regularly cruising off-shore in open water, where in a hard chance, a dead motor might be disastrous without some sail equipment. The wisdom of having an emergency source of power is borne out by the example of the fishermen along our coast who go out in their 28- and 30-foot motor driven dories in all kinds of weather, summer and winter, and who have learned the necessity of having at least one rag of canvas which they can rely on if the engine fails them.

So the whole proposition resolves itself down into this—that the boatman must consider just what his problem is. If he is cruising always in protected waters where engine failure is not a serious matter, then there is little question but that he is better off without the sail equipment, which is almost certain to prove a nuisance. If he happens to have a straight sail boat and does not greatly relish the idea of drifting by the hour in a flat calm or poising and rowing his boat home under a broiling sun, then he might successfully handle this situation by having with him an outboard motor, to be used either on a tender for towing the sailboat or to be attached directly to it. If his intention is to cruise along the coast, possibly his best layout would be a good substantial motor boat of the cruiser type, with an up-to-date reliable marine engine, and just a small sail or two spread from a minimum amount of spars and rigging. Simplicity should be the keynote. With the small amount of sail, if the engine should fail when there is not enough wind to drive the boat at a reasonable speed, there is no special danger anyway because there will be no sea running, and if it should happen during a hard blow, then the small sail area will be safer and will give him ample driving power to make some port. At the same time, this small sail can be used occasionally when driving through a rough sea under power—it will help materially to steady the boat and keep it from rolling. Finally, if nothing short of extended deep sea trips will satisfy our boatman, then we strongly recommend a good-sized able sailing vessel of the ketch, yawl, or schooner type, equipped with a small reliable engine, figuring to depend normally on the wind alone and to use the engine occasionally when the wind fails to help out, or for maneuvering in crowded harbors. As for the 50-50 type of boat, we cannot deny the fact that it makes a good wholesome sort of craft, that offers a good factor of safety and satisfies the desire of the man who likes to spend part of his time sailing and part motor boating, but perhaps it finds its greatest range of usefulness among that class of more ex-

(Continued on page 172)



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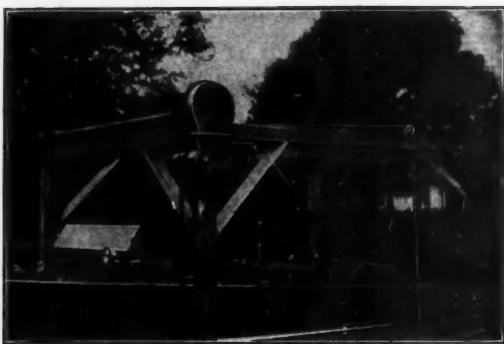
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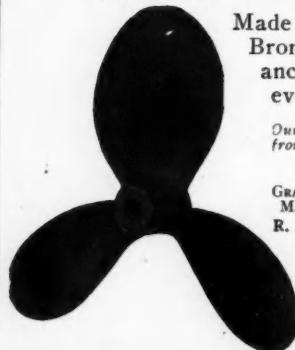
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## What the Novice Should Know

(Continued from page 170)

perienced yachtsmen who appreciate at once its capabilities and its limitations.

Appreciating the fact that the average man contemplating the purchase of his first boat does not care a great deal about all the theoretical problems that the designer had to consider in order to make his boat seaworthy, it will be best for us here to merely point out a few of the fundamental things which affect a boat's ability to go through rough water, safely and comfortably—points which might help him to decide which of several craft under his consideration will prove the safest if it is ever called upon to bring him through any kind of a storm, as it certainly will be at some time or other.

First there is the problem of stability or the tendency of a boat to roll sideways in a beam sea, that is, when the waves are approaching the side of the boat and it lies lengthwise in the trough of the seas. Some of the crankiest boats ever designed can be safely driven through fairly rough water if conditions are such that they can be kept head to the sea but let them be caught sideways for an instant and allowed to roll in the trough and they immediately do their best to roll completely over and capsize. What, then, determines whether a boat will have a tendency to roll back and forth stiffly and jerkily, roll completely over, or swing easily and comfortably through periods of rolling neither too long nor too short?

We can say, in general, that it depends on two things—the design of the bottom and the way in which weights are distributed throughout the boat. Let us compare the action of a wide shallow hull with that of a narrower, deeper one for purposes of illustration. In calm water the wide boat will be hard to upset from its even keel and will carry considerable weight on either side without listing much. If a person jumps on its side from a dock, that side sinks comparatively little and comes back to nearly its original position very quickly. Under similar conditions the narrow deep type will go fairly deep on the first roll and continue to roll back and forth, coming to a gradual rest. This is practically what happens when the boat is rolling in rough water. The wide one rolls down quickly, stops suddenly and recovers itself quickly in a very uncomfortable way. The round bottom, on the other hand, narrower and deeper, recovers itself more slowly and is consequently easier and more comfortable.

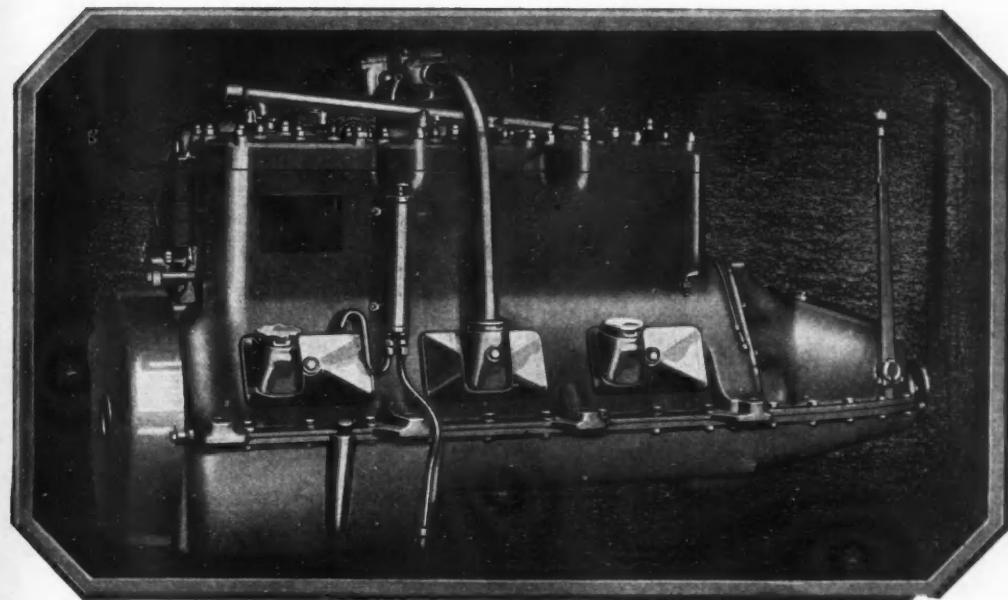
This brings us to the subject of the distribution of weight. If we place all of the important weights such as engine, gas and water tanks, ballast, etc., deep down in the hull, the boat becomes too stiff. This is a common mistake made by a great many yachtsmen who try to get all their weights concentrated along the keel. True, it brings the boat down to a given water line if they want it to set deeper in the water, but a far better practice is to distribute the weights about the hull, some low down and some fairly well up, and the result will be a much better sea boat. Very often we see boats with several good sized masts which have been put in for the principal purpose of increasing the boat's period of rolling. However, we must not carry it to an extreme or we reach a point where the boat rolls over too far.

So we deduce from this that we must strike a happy medium between the boat which is so stiff as to be uncomfortable and the one with so little stability as to be in danger of capsizing. A boat which has a good percentage of her hull in the water—that is, quite deep—of moderate beam, and with ballast and principal weights such as engine gas and water tanks, etc., well distributed, will prove to be the most seaworthy cruiser.

Relative to the general design of the bow we find that the lines should be fine enough below water to give us an easy entrance into the water without pounding and straining the hull when driving into head seas, and at the same time it must be full enough above water to provide the buoyancy necessary to prevent the boat from burying its head in a heavy sea. This buoyancy should be gradual to absorb any tendency to plunge and to let the bow down easily instead of with a sudden shock. In this connection, there should be a generous flare or outward curving of the sides. The effect of this is to throw spray clear of the boat and keep the decks dry.

As for the various kinds of bottom designs, we find that the round, vee and flat bottoms are the principal models. The round and vee are the designs generally employed in cruiser construction and of these the round bottom is generally conceded to be the stronger while the odds are in favor of the vee in the matter of speed. The reasons for this are quite apparent. In the round model, the frames of the boat are carried in one piece from the keel up the sides while in the vee type it is necessary for them to be in two pieces. In the matter of speed while the vee type has a tendency to cut through them. The flat bottom construction is practically a total failure in the way

(Continued on page 174)



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And so today, as a logical development of the F-6, we announce the Model 124—a super-duty motor of like size but of increased power and speed without resort to special fuels and without sacrifice of dependability or compromise of sound marine engineering practice.

Like all SCRIPPS Motors, Model 124 is strictly a marine motor, its every part designed to endure that endless nerve-rack-

ing strain of continued full-throttle, top-speed operation under which no automobile motor or adaptation thereof was ever intended to survive.

Its patented counterbalanced crankshaft suffers less flexure and exerts less strain and wear upon its bearings at 3000 RPM than does an ordinary crankshaft at half that speed. Lynite pistons and rods lessen internal strain and eliminate destructive vibration "periods".

Perfected down-draft carburetion provides a revelation in ease of starting, flexibility and power. Moreover, it takes the carburetor out of the bilge and places it on top of the motor where it belongs.

Deliveries start April fifteenth.

Write or wire today for our new catalog descriptive of Model 124 and nine other SCRIPPS Motors—15 to 200 HP—for both high-speed and medium duty service.

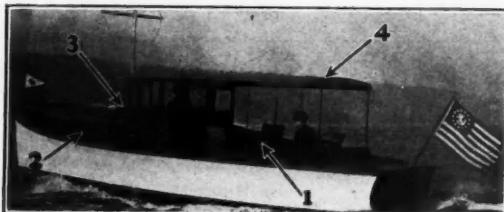
SCRIPPS MOTOR COMPANY  
5819 Lincoln Ave. Detroit, Michigan

The  
NEW  
Model  
124

# SCRIPPS

\* THE MOTOR THAT CROSSED THE ATLANTIC \*

## FOUR POINTERS FOR YOUR BOAT



## 1—RUSSIALOID

(Reg. U. S. Pat. Off.)

The ideal artificial leather for boat cushions. Supplied in a wide range of colors and grains.

## 3—TEXTASOTE

(Reg. U. S. Pat. Off.)

Admittedly the leader for awnings, spray hoods, weather cloths and waterproof covers. Obtainable in many color combinations.

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An excellent insulating and weatherproof panelling. Ideal for cabin joiner work and will take a high, natural wood finish.

## 4—PANTASOTE

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A fire resisting, double texture, leather substitute unexcelled for long wear and unaffected by change in climatic conditions.

Let us send you samples

## THE PANTASOTE COMPANY, Inc.

250 Park Ave. at 46th St.

New York, N. Y.

## What the Novice Should Know

(Continued from page 172)

of seaworthiness on account of its habit of coming down from the crest of a wave into the trough with a pound that strains the whole boat, and another objectionable feature is its tendency to plunge into a wave and ship water over the bow. It does excel in one respect and that is in its shallow draft, if the boat is to be used in shoal protected water. While the Seabrigdory, one of the most seaworthy types ever developed, might be offered as an argument in favor of the ability of the flat bottom, it must be pointed out that this model merely starts with a flat bottom board or keel and is more nearly a round bottom than flat bottom hull. The flat portion is not especially wide even at its widest point and at the ends it tapers off to practically a point.

While these are the principal types of bottom used in cruise construction, there are a number of other models which might be mentioned in passing. The kind capable of the greatest speed is the step type used on hydroplanes. This is a variation of the flat bottom hull and is used only where extreme speed is required. The Sea Sled model is in a class by itself as it is radically different from all other kinds, having a square bow, and an unusual hollow construction underneath, shaped like an inverted V which permits the boat to ride on a cushion of air at speed.

In the matter of the various kinds of bows and sterns and their respective merits, there are three principal shapes commonly used for bows. These are the straight, the round or schooner, and the clipper. Of these the straight is most often used and is found in both plumb and raked type. As the names imply the plumb type is perpendicular to the water and the raked style is inclined, generally for better appearance. The straight stem is not quite as seaworthy as the clipper bow, but has a great advantage in that it is cheapest and easiest to build. At the same time it reduces waste space and weight to a minimum and proves fairly seaworthy but is likely to pound and be wet in any kind of a sea. It has a pleasing appearance and provides good buoyancy above the water as well as good maneuvering qualities, on account of its being cut away at the water line. Against this we have the factors of costly construction and wasted space. The clipper bow, which is shaped with a reverse curve and is invariably used in conjunction with a bowsprit, is rarely found on small boats and only on craft with mass. It is unquestionably the most graceful of the three types and is also the most seaworthy. In case of collision, there is the least chance of injury to vital parts with the result that danger of sinking is minimized, but it has serious disadvantages in its cost and difficulty of construction, and waste of space and weight.

The last thing for us to consider is the subject of various stern designs. The transom, fantail or overhanging, and compromise or double ender sterns are those most commonly used. The kind known as the torpedo stern has proved so impractical as to have almost passed out of existence. Of the other three, the transom type seems to be the most popular. This is the stern most often incorporated into the design of modern cruisers and may be either flat or rounded and either plumb or slightly raked. It is by far the easiest and cheapest to build and at the same time it permits a maximum amount of space both on deck and in the hull with a minimum amount of weight. In point of gracefulness and seaworthiness the fantail or overhanging stern is far superior to the transom but here the disadvantages are expensive construction, loss of space on a small boat and a tendency to squat in the water, materially reducing the speed. The compromise stern is the type which resembles the construction of the round bow, such as is found in whale boats and life boats. It is generally conceded to be the best in point of seaworthiness and its construction is also very strong but it has a bad tendency to suck down in the water even at moderate speed. Valuable space is lost both on deck and below. The canoe stern is a modification of the compromise which is very rarely seen.

We have succeeded now in covering, in a general way, the different types of craft in which the beginner is likely to be interested, either from the standpoint of the selection of a type to suit his requirements or from that of general interest and knowledge of the boats with which he is apt to come in contact. We have also attempted to outline the more important boat designs and to point out some of the elements that determine their success as sea going craft. Equipped with this preliminary information, the reader has something to think about before coming to a definite decision on the style of boat he wants. In the next article we shall assume that he has decided on a particular type that suits him best and try to give him concretely an idea of the points that he should look into in connection with the construction and condition of hull and motor before buying (if he is considering a used boat), the relative advantages of purchasing a new or used boat, and the various parts that enter into its construction.

(To be continued)

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of Marine Equipment—

An improved model of our regular navy pattern bilge pump. Installed below deck on cockpit floor and piped overboard.

Length 26"; Dia. 2 3/4". Complete with heavy cast brass strainer... \$15.00  
5" deck plate for above..... 4.50  
Brass nipple for supply 1 1/4 x 3 1/2" ea. 50c  
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**LOBEE** CIRCULATING & BILGE PUMP

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Gear and Rotary Pumps from 1/2" to 1 1/2" suction and discharge. Different designs for various types of drive and mounting made to order.

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**LOBEE PUMP & MACHINERY CO.**  
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It does  
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Seabright  
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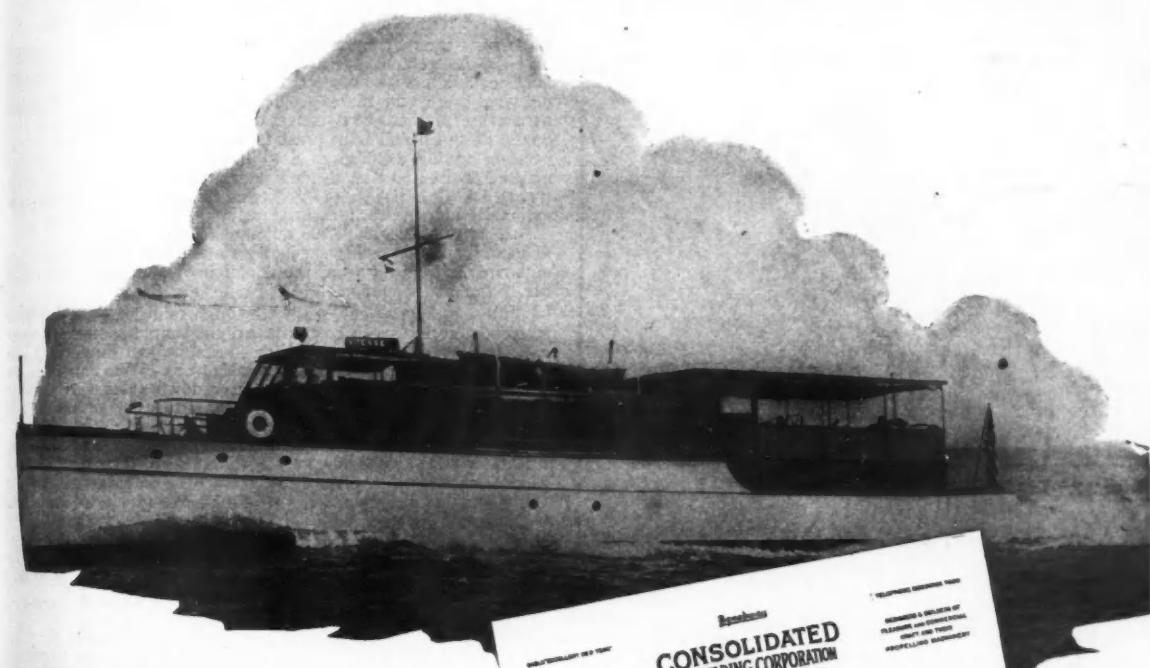
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Where  
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# Products

Woolsey's Yacht White

Unbeatable for whiteness and wearing qualities. Will not crack, blister, nor peel. Leaves an ideal surface for re-painting. Made up in gloss, semi-gloss and flat finish.

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JERSEY CITY Since 1853 NEW JERSEY, U.S.A.

Mention MOTOR BOATING, 57th St. at Eighth Ave., New York

RECOMMENDED PAINT  
FOR  
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CHARLES L. SEABRIGHT & COMPANY CONSOLIDATED  
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Dear Sirs:

It gives us pleasure to state that we have  
been using Seabright anti-fouling paints on  
boats of our build for many years and these  
paints have given universal satisfaction.

Very truly yours,  
C. A. Woolsey & Company  
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Copper Best Paint  
Gives the smoothest  
sailing — with absolute  
protection against foul-  
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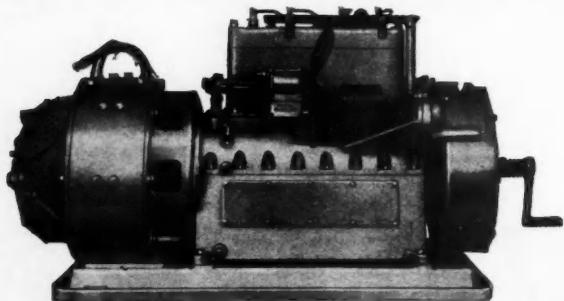
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Yacht Crews Uniformed at shortest notice, strictly according to club regulations.

#### CAPS AND DEVICES OF ALL CLUBS

Illustrated Catalogue of Yachting Uniforms will be sent you on request.

### WHERE CURRENT MUST NOT FAIL



eternally on the job

A Universal Electric Plant is built part by part to deliver service that can always be relied on. Compact, economical, smooth-running, ready accessibility, oversize 4-cyl. engines—you'll get maximum service from your Universal. Tell us your needs and we'll be glad to specify the proper unit.

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MARINE TYPES 1 1/2 • 2 1/2 • 4 • 7 1/2 • 10 • 12 1/2 • KW.

### Time Payments In Boat Buying

(Continued from page 54)

these restrictions, the builder of the individual type of craft will benefit. As volume increases the dollar-values offered by stock boat makers may be expected to improve accordingly, thereby drawing more and more people into motorboating. A certain percentage of motorboat converts will always prefer an individually designed and built craft to a stock boat. In time, experience in this field gives us a better working basis, methods may be devised so that the individual type of small boat may be financed. Just now, however, we are confining ourselves to nationally-known stock models including outboards."

Just as the \$500 to \$1,000 automobile manufacturer has found financing an aid to his business, so will the manufacturer of outboard hulls profit from the adoption of standard financing in Mr. Nicodemus' opinion.

"Fully equipped and ready to go," said he, "an outboard motorboat compares in cost with a light-weight motor car. Our experience in financing the little boats is just beginning with Dee-Wites, Ludingtons, and several others. We anticipate the partial payments will not only batter down sales resistance on the part of the public but that it will also be a big help in enabling territorial distributors to aid dealer outlets.

In the case of wealthy yachtsmen, the theory has been that little use would be made of financing them when a \$10,000 or \$15,000 craft was involved. Experience to date has shown that the rich, like the poor and well-to-do, are quick to utilize the partial-payment plan for their boats.

"Our salesmen report many interesting sidelights on the financing of really expensive boats," said Nicodemus. "One of our district men came in only yesterday with the story of a very wealthy yachtsman on the Great Lakes who made the minimum down payment on a \$12,000 job. He laughingly told our man that he would use the capital thus conserved to make the stock market pay off his installments. A week later he telephoned our representative that an upswing on a certain stock had already paid for his boat. This is only one of many reasons why the time payment plan seems to be popular with wealthy purchasers of expensive boats."

Modifications of boat financing will undoubtedly be worked out according to Mr. Nicodemus, as material is added to the experience tables. The fundamentals of the financing system now in operation will remain.

"Financing is a good deal like life insurance," said he, "in that the law of averages is the basis of the business. The law of averages tells us that it is safe and conservative to sell an oil burner or a refrigerator on down payments as low as 15 per cent with the balance divided into 18 monthly installments. Practice in the automobile business is a minimum down payment of 33-1/3 per cent with the balance in 12 months.

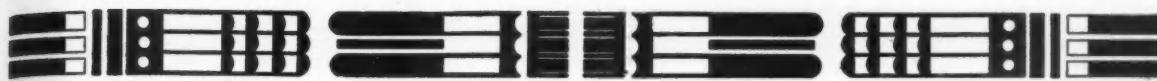
"We have made a beginning in boating with a conservative 40 per cent down payment. As time passes, and as our statistics on yachtsmen assume large proportions, changes possibly will be made in the details of the plan."

Commercial Credit Companies has its own full operating branches in 158 cities in the U. S. and Canada, and service offices at 277 other points. Through Kemsley, Millbourn & Co. Ltd., a subsidiary, financing service is made available in the principle countries abroad. In 1928 the organization did a volume of business totalling \$265,000,000. Capital and surplus approximate \$43,000,000.

### A TIME PAYMENT PLAN

Any article today may be bought on the Time Payment Plan. Boats are the latest addition to the list. The Motor Boat Show at New York, also the Boston Show proved a real need for a conservative and workable deferred payment plan to assist yachtsman, boat builders, dealers and marine engine manufacturers. Such a plan has been developed by the United States Acceptance Corporation of Philadelphia, Pa. This corporation with the help of one of the foremost Admiralty Lawyers of New York City, leading Naval Architects, and Brokers and Boat Manufacturers, after many months of careful investigation, formed a Marine Division of this corporation with David S. Bechtel as manager. This corporation offers a special service through Mr. Bechtel, who is a Naval Architect and Marine Engineer, as well as a Yacht Broker and Marine Insurance Broker. With his wide experience in both commercial and yachting fields he will be of great value to those interested in increasing their sales through this medium.

The plan provides for the financing of new and used boats both of commercial and pleasure types, also Diesel marine engines.

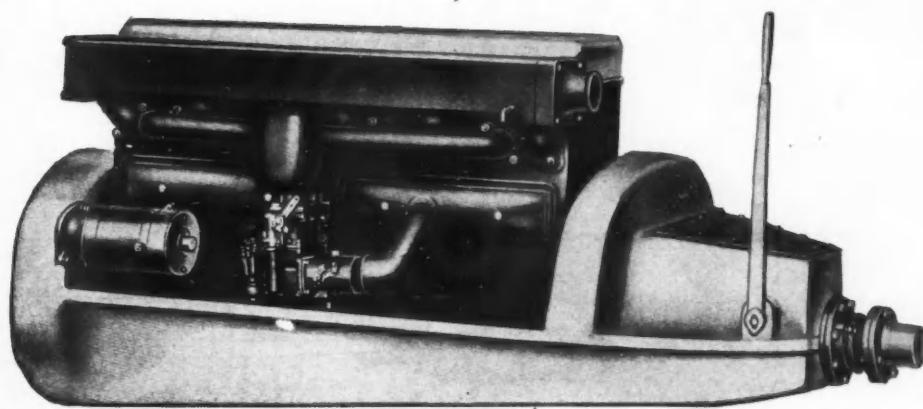


# The New Continental-VAN BLERCK

## Eight-in-Line Marine Motor

115 H.P.

\$895.00



ONLY Continental-Van Blerck experience and knowledge combined with tremendous manufacturing facilities make possible this new eight-in-line 115 H.P. marine motor at the remarkably low price of \$895.00.

The Continental-Van Blerck "Eight" like the famous "Sixes" incorporates the most advanced engineering features. Every moving part is accurately machined and balanced, assuring smooth, vibrationless performance with long life. For express cruiser or runabout service, you could not buy a finer power plant.

*Write today for full particulars*

### VAN BLERCK MOTORS, INC.

Builders of VAN BLERCK, JR., and CONTINENTAL-VAN BLERCK Marine Motors

RED BANK, NEW JERSEY



# A Goat-Cart never made a good Moving Van

*No More Does an Undersize Reverse  
Gear Make a Good Power Passer*



**A**N undersize reverse gear passing the terrific power of a modern marine engine is like a goat-cart carrying too much furniture.

The load is too great in both cases for either the clutch or the cart to handle.

If you want power satisfaction to travel aboard your boat for season after season, make sure your reverse gear is tough enough to stand the job.

How do you know if it's big and tough enough? Look only for the nameplate PARAGON on the handle. Find out if it's a new 90 Line, then you'll

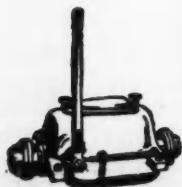
know you've got a reverse gear equal to the man's size job of passing the power of modern motors.

The Paragon 90 Line with high speed reverse is honestly built, simply built, ruggedly built — to hold all it gets, provide you with a factor of wear, hold down your repair bills

and give long seasons of service. Write us for information if you need a replacement — look for PARAGON on the new motors you buy. Write us for information on the Unit and Enclosed Types of Paragons.

*The* **90**  
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**PARAGON  
REVERSE GEARS**  
PARAGON GEAR WORKS  
403 Cushman Street, Taunton, Mass.



= You are =  
 Captain  
 Crew and  
 Bo'sun,  
 too, on a



# Richardson Cruisabout

**R**ICHARDSON Cruisabouts are one man boats —small enough for you to operate and keep shipshape without help—big enough to safely take your family and your friends for a cruise or day run wherever you want to go.

And wherever the water is three feet deep or deeper, you can navigate the Cruisabout. Up winding streams or in hidden coves—there you find a refuge and haven for rest, comfort and relaxation. Where white caps dot the blue water—there you will find action with thrills aplenty to keep you peped up and feeling fit.

The three low-priced Richardson Cruisabout models are profusely illustrated and described in the new Cruisabout brochure. Write today for brochure "E" which will be gladly sent at your request.

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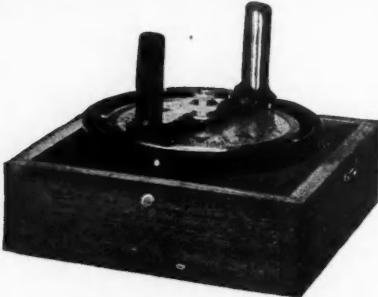
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**PELORUS**

**A** PRECISION instrument for taking bearings of the sun, stars, or land objects, and for determining compass errors. Dial  $4\frac{1}{2}$  inches, graduated in degrees 0 to 360. \$26.50

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83 Pearl Street New York  
*Catalog mailed upon request.*

**HILL-DIESEL**

**For Fine Motor Craft**



5" x 7"—Two to Six Cylinders.....28 to 75 H.P.  
6" x 10"—Four and Six Cylinders.....50 to 120 H.P.

*Bulletin No. 60 fully describes these models. Ask for a copy.*

Hill Diesel engines are recognized as the most advanced Diesel power plants for cruisers under seventy-five feet in length. In addition to giving the well known and undisputed advantages of increased cruising radius, without enlarging fuel storage tanks and at a greatly lower cost per mile than gasoline power, the Hill Diesel embodies the most simple design, producing the highest operating efficiency. It uses the same fuel as large Diesels,—runs smoothly and quietly,—throttles as slowly as necessary and accelerates rapidly with speeds up to 1000 R.P.M. It starts cold without torch or other nuisance. All moving parts are pressure lubricated and readily accessible without the necessity of taking down the motor. Neither are there small holes in the injection nozzles to become clogged or entirely closed by carbonization.

**HILL DIESEL ENGINE COMPANY**  
**LANSING, MICHIGAN**

*Builders of Internal Combustion Engines Since 1899*

## Drip Pans Under Engine

*(Continued from page 58)*

and grease drippings from the engine and could easily be removed for cleaning. It is obvious on the modern boats of today where every bit of room is utilized and with engine space cut down to a minimum that it is difficult to find space in which a metal pan may be slid out from under the engine. The next best thing in this case would be to line the bilge with a non-rusting metal and using lime and a brush the bilge can easily be kept clean.

Without resorting to mechanical means which are subject to attention and possible breakdown,—the use of scoops for ventilating the bilge is good. A large size vent (in proportion to the size of the boat), facing forward on center line and just aft of the forward engine room bulkhead is a good location. If the boat is without bulkheads then up forward would be better. If the vent can not be placed on the center line then use two: one on either side, but ahead of the engine. In any of these cases these vents should be carried down to within a few inches of the bilge or as deep into the hull as possible without closing the effective opening of the vent. Openings must also be provided for the escape of air taken in, either in the form of a port, grille, or a scoop vent facing aft. It would be preferable to have these opening aft of the engine so that the bilge will be swept with a current of air and at the same time vent the engine room. These exit vents should have the equivalent opening area to that of the inlet vents. Regardless of wind direction and speed of the boat this has proven to be very satisfactory where vents have not been restricted by cabin trunks etc., but it is up to those that install these vents to see that they are free to catch all the air possible.

E. A. K., River Edge, N. J.

## Take Pride in Clean Bilge

*(Continued from page 58)*

WHEN you show your friends over the yacht it is a safe bet that you don't show them the bilge. They wouldn't be interested any way unless they owned a boat themselves. Then you wouldn't care to have your fellow boatmen see that that part of your boat which is generally pumped out and not seen is in no better condition than aboard their own boat. Generally speaking, the bilge of a motor boat is not supposed to be clean but it does not follow that the accumulation of years should remain as a fire hazard and a breeding place for foul odors. The bilge is apt to contain almost anything from jewelry to sand. Surely, on inspection you will find plenty of oil and greases floating on the water and adhering to the planking and frames. As the bilge water is pumped out the oil and grease sticks to the planking and frames and holds saw dust, small bits of wood, papers and what not. In the bilge you can find relics dating back to hair pin days, small change, screws, nuts and bolts;—the list is endless for everything small eventually finds its way to the bilge. Does this mess need cleaning out? It most certainly does, if for no other reason, than for the safety of the boat. Think of the result if a little gasoline leaked into the bilge and the vapor came in contact with an open flame. The insurance won't cover the loss and you may be far from home at the time.

This sticky conglomeration holds the moisture and excludes air from the wood. Damp wood in an unventilated place offers ideal conditions for the starting and development of dry rot. Now, I guess you will clean the bilge. The age of the boat and the extent of the collection will suggest the method to follow. If cleaned every fall before hauling out the job will be easy. Before leaving Sunday night sprinkle a liberal quantity of good strong soap powder in the bilge, and leave in more than the usual amount of water. As an alternative, dissolve the washing powder in the deck pail and pour the solution in the bilge. A five pound package will not be too much for a 25 foot cruiser. Sal soda is fine for cutting grease but is hard on the hands and should not be left in the bilge longer than over night. It will also cut the old paint, which is desirable.

The soap powder will cut the grease and loosen much of the incrustation, which will settle down along the keel. The rocking and rolling of the boat will keep the soap solution washing over most of the bilge. Where the bottom is fairly flat a few handfuls of gravel about the size of marbles will help to loosen the dried grease. What grease is not loosened will be softened so that it may be easily scraped off.

Now someone will have to work. The only way to loosen what the soap powder solution or sal soda has not removed is to use scrapers and elbow grease. Paint in the bilge is useless and does more harm than good. Scrape off all the old paint that can be loosened. A little ingenuity in the construction of scrapers will save much work and enable you to clean far up the sides. A handy scraper can be made by drilling a piece of

*(Continued on page 184)*

NEW 1929 MODELS

**BLACK & DECKER**

**5/8-INCH VALVE REFACER**  
--\$140

The day of lapping valves into their seats by hand is long past. With the Black & Decker Valve Refacer, Valve Seat Reamers and Valve Seat Grinding Stones, a perfect job can be done on a complete set of valves in about one fifth the time required to do the job by hand, and with a uniform and tested accuracy.

The Black & Decker 5/8" Valve Refacer will grind valves at any desired angle, and is supplied with attachments for—

Dressing the grinding wheel  
Squaring or chamfering ends of valve stems  
Resharpening valve seat reamers

Extra attachments make it possible to use this machine for—

Grinding expansion reamers  
Grinding rocker arms  
Dressing breaker points

**BLACK & DECKER DELUXE ENGINE KIT--\$125**

A large convenient metal chest containing the following items—

1- 1/2" Heavy Duty Electric Drill  
1- Stand for mounting Drill on bench  
1- Valve Seating Stone, 13/16" x 45°  
1- Valve Seating Stone, 17/16" x 45°  
1- Valve Seating Stone, 21/8" x 45°  
1- Reamer, 13/16" x 45°  
1- Reamer, 17/16" x 45°  
1- Reamer, 21/8" x 45°  
1- Narrowing Reamer, 13/16" x 20°  
1- Narrowing Reamer, 17/16" x 20°  
1- Narrowing Reamer, 21/8" x 20°

1- Narrowing Reamer, 1 1/2" x 70°  
1- Narrowing Reamer, 2 1/2" x 70°  
1- Turning Wrench for Reamers  
1- Self-Centering Pilot, 5/16"  
1- Self-Centering Pilot, 11/32"  
1- Self-Centering Pilot, 3/8"  
1- Stone Sleeve  
1- Universal Joint for Stone Sleeve  
1- Pilot Removing Pin  
1- Dressing Mandrel to sharpen Reamers and Stones

3- Sleeves for Reamers  
1- Carbon Brush with Holder  
1- Valve Guide Cleaner 5/16" to 23/64"  
1- Valve Guide Cleaner 3/8" to 27/64"  
1- Wire Wheel Brush, 4"  
1- Arbor for Wire Wheel Brush  
1- No. 1 Valve Tester  
1- No. 2 Valve Tester  
1- Oil Can for seat grinding  
1- Small Hose for seat grinding  
1- Large Hose for seat grinding

Write for the new 16 page catalogue describing Black & Decker Valve Grinding and Carbon Cleaning Equipment.

**The Black & Decker Mfg. Co.**

Toronto, Ontario, Canada

Towson, Md. U. S. A.

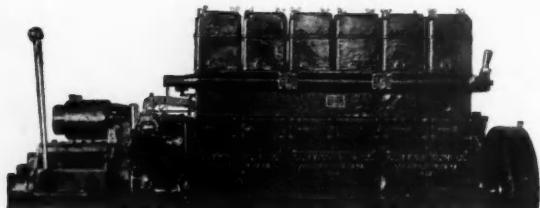
Slough, Bucks., England

44 46

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Standardize on  
Joes Gears

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- are constantly alert to new ideas
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One of the charter members of  
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President, Cummins Engine Co.

"Your gears have proven entirely satisfactory. As you well know, the reserve power and peculiar torque characteristics of Diesel Engines call for the best possible reverse gear installation, and it is gratifying to know that we can buy a fully developed gear such as yours to meet these requirements." For Bulletin 27A describing Joes Gears, also a 1929 vestpocket calendar and "Rules of the Road," write the Snow & Petrelli Mfg. Co., 19 Fox St., New Haven, Conn.

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REVERSE 80%—88% of Motor Speed

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**A 27-mile Sport Fishing Cruiser**

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Snug, trim, staunch, the Wheeler Super Playmate not only provides new cruising comforts to the owner and his family, but furnishes an unequalled riding and driving grace perfectly blended to give every assurance of sea fitness and safety. Five Wheeler stock models priced from \$2250 to \$7650. Write for full details and specifications. . . . Ask for Catalog "A"

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**\$6850**

Afloat New York City





for  
Rot or  
Accident

**Rot or accident in or to the keel, stem or dead-wood necessitates the use of a graving piece. Plastic Wood used for this graving piece simplifies the repair, produces a permanent job, and eliminates leaks. Cut away rotten or broken wood, leaving the surfaces of the hole rough. Undercut around the edges, and if possible, drive in a few copper nails of suitable size. Apply Plastic Wood in layers of  $\frac{1}{4}$  inch or less, allowing each to dry. Build above the surface and plane smooth.**

**PLASTIC WOOD**  
Reg. U. S. Pat. Off.

**At Ship Chandlers, Hardware and Paint Stores**  
1 lb. can \$1.00       $\frac{1}{4}$  lb. can 35 cts.  
Write our Engineering Dept. for free book on Plastic Wood for boat repairs, or for advice on any specific problem.

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## NOW! the finest Naval Architects help you build your boat

Brooks offers you 55 designs from which to choose your boat, and the finished boat costs only 1/3 what you would normally pay. Cruisers, V Bottom Runabouts, Outboard Speedsters, Hydroplanes, Rowboats, Sailboats, or most any craft that your fancy desires; and all of them designed by leading naval architects.

The boat you choose can be built in your own garage, the first glad days of Spring.

**BROOKS BOAT COMPANY, INC.**

Dept. 3D

Saginaw West Side,

Michigan

**Brooks**  
KNOCK-DOWN  
BOAT FRAMES

## Take Pride in Clean Bilge

(Continued from page 180)

sheet iron about  $\frac{1}{8}$  by  $1\frac{1}{2}$  by 4 inches and riveting it to a  $\frac{1}{4}$  inch rod, or the blade may be held between two nuts threaded on the rod. Work the scrapers as far up the sides as possible bending the handle as seems necessary. Follow the scraper with a wire brush screwed to a similar handle and all that can be loosened with a reasonable amount of labor should be, working towards the keel. Give a good rinsing with clean water from a hand bilge pump and a pail if no other pressure is available. Then if you enjoy a mean job use soap powder on a scrub brush and rinse again.

Clean the pump well and strainer and pull the limber chain. Then start the bilge pump to remove the dirty water. Now, starting forward, scrape out the collection along the keel and up the sides with a putty knife and the bent tang of a file. Get all that you can from between the frames and put the dirt in a can as it is scraped up. It is a dirty job and plenty slow but the only other way is by means of a vacuum hose. It is, however, not suggested that you borrow the vacuum cleaner from home. An old hand operated vacuum cleaner would be good on a dry bilge. A hand bilge pump will remove much of the water from between the frames and dirt will collect on the strainer at the bottom of the pump or the suction hose. You may follow out as many of these suggestions as you wish, depending on what you consider a clean bilge.

Sometimes the soap is put in the week before hauling and drawn off after the boat is on shore. This saves pumping, otherwise the operation is the same.

In cleaning the bilge before going in commission, first use scrapers and wire brush on the dry wood, removing the dirt as it accumulates. Then use soap powder and scrub brushes and follow up with the scrapers.

Now is the time to inspect the timbers and frame for dry rot. Jab them well with the corner of the putty knife and if you notice any white spots somewhat resembling egg skin, give the wood a twice over with the knife blade. These small white spots gradually turning to brown are the first signs of dry rot and the wood upon which they appear may be only a shell. Of course, any rotten timber should be replaced.

Don't paint the bilge. Use a good wood preservative. Apply the preservative hot and give the wood all that it will take. The odor will soon leave when the boat is ventilated. Most wood preservatives are inflammable and when heating use a double boiler. Preservatives are most effective when applied hot to dry wood. Two coats are better than one. It follows, therefore, that the bilge should be cleaned in the fall and the preservative applied in the spring when the wood is fairly dry. A little preservative leaking through an open seam in the bilge will do no harm as it will not strike through the dark bottom paint or prevent the paint from adhering to the surface.

Now that the bilge is clean, a new question arises. How to keep it clean? Tight floors in the cabin and cockpit and in the lockers and a drip pan under the engine and reverse gear is the answer. The removable boards in the floor make covering with one piece of linoleum impractical, so the linoleum must be cut at the edges of the removable sections and the piece cut out fastened to the sections. As these sections can not be a tight fit dirt will again begin to accumulate in the bilge. To prevent this alter the floor so that the hatches close on a rabbet. This will necessitate taking up some of the floor or narrowing the opening in order to provide the rabbet. After the floor has been altered so that all loose sections close on a rabbet on all sides, fit the linoleum and finish the edges with a brass binding. Brass hatch moulding mitered at the corners and screwed to the hatch will answer the purpose of a rabbet and binding admirably giving an exceptionally neat finish as well as being effective in preventing dirt from getting into the bilge.

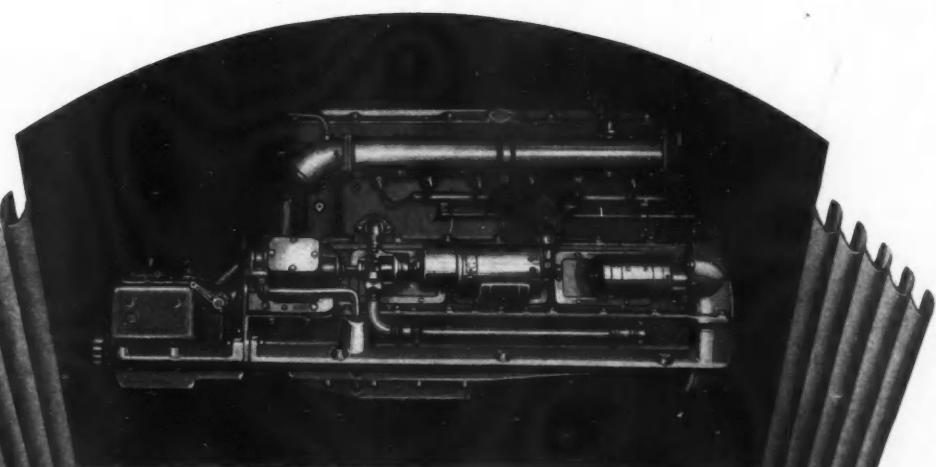
See a sheet metal worker for the drip pan under the engine. For the results that we all like to get, the drip pan should extend from the fly wheel to include the propeller shaft flange, and beyond the edge of the engine base. It will be necessary to loosen the engine to properly install the drip pan but it is worth the trouble for, so fitted, no drippings can get into the bilge. A re-alignment of the engine may make considerable difference in its operation and will relieve vibration from misalignment. As a precaution against fire have a well at the lowest part of the drip pan and have the well flame proofed by a piece of fine mesh brass gauze soldered over the opening. Flame can not pass this screen nor will vapor below the screen be ignited by flame above it. A  $\frac{1}{4}$  inch shut off with hose connection will provide for draining by attaching a pump and pumping the drippings into a pail to be emptied over the stern while the boat is under way. The drip pan should be kept clean.

Ventilation will prevent the odors that arise from a tightly closed bilge and also aid in the prevention of dry rot. A cow ventulator forward with an air duct leading to the bilge is the

(Continued on page 188)

# 160,000,000 Miles Monthly

## or 6,666 times around the world



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MARINE ENGINES

THE versatile character and many in-built features exclusive to Hall-Scott give a superior performance in craft of all types. The Hall-Scott record of 160,000,000 miles monthly, equal to 6,666 times around the world, is a direct result of foremost engineering skill plus intimate knowledge of nautical requirements.

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Built by Red Bank Yacht Works, Red Bank, N. J., for Mrs. Helen H. Smith of Red Bank. Two Hall-Scott LM-6 Marine Engines. Speed 29 M.P.H.

If you are building a new boat or remodeling your present one. Hall-Scott counsel can be of practical value to you.

BLUE PETER—96 Feet

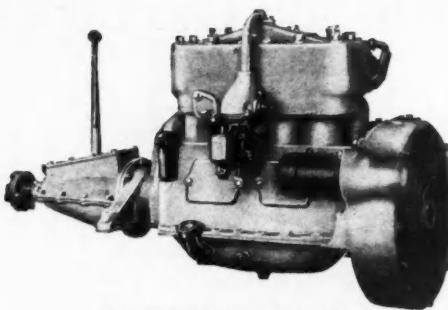
Designed by L. F. Geary and built by Lake Union Dry Dock Co. Seattle, Wash., for John Graham of Seattle. Two Hall-Scott HD-6 Reduction Gear Engines. Speed 11 knots.

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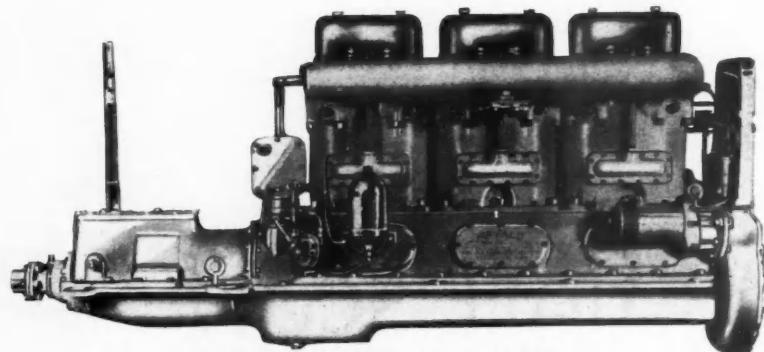
A DIVISION OF AMERICAN CAR AND FOUNDRY MOTORS COMPANY

Mention MOTOR BOATING, 57th St. at Eighth Ave., New York

**BUFFALO NAVY**

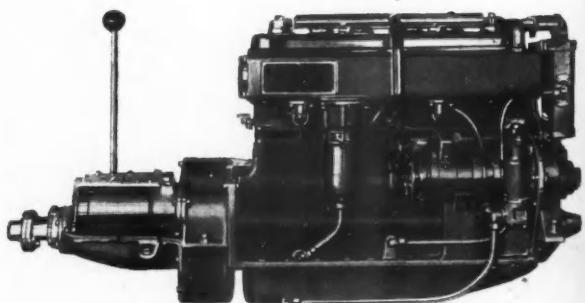
4 Cyls.—3½ x 5  
30 H.P.—\$480

# UNFAILING SERVICE AT LOW COST

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4 Cyls.—5¾ x 7—125 H.P.—\$2,000  
6 Cyls.—5¾ x 7—200 H.P.—\$2,200  
8 Cyls.—5¾ x 7—225 H.P.—\$2,800

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BOAT AND LET US  
SUGGEST A BUFFALO  
TO POWER IT**

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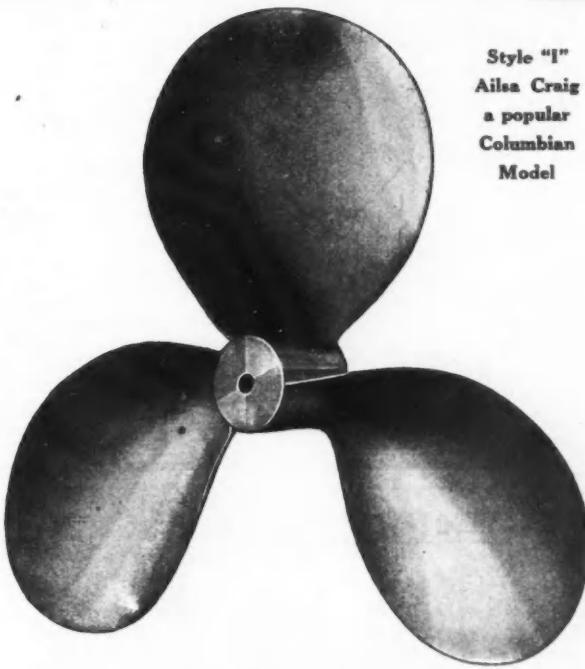
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Ailsa Craig  
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COLUMBIAN PROPELLERS owe much of their popularity to Columbian distributors. For, no matter how well we build propellers . . . how fairly we price them . . . how widely we advertise them . . . upon the knowledge, ability and courtesy of our distributors depend in a large measure your satisfaction and our success.

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They are good. By the company they keep they must be good. Guaranteed for 3000 hours constant use. Each year to be found on more fine boats as standard equipment.

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A combined air compressor and pump unit of rugged construction and many uses. Furnished with either 32 or 110 volt motor. Can also be had with compressor only. Manufactured by the makers of Hi-Duty Direct connected Pumps.



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250 GREENWICH ST.

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Used by  
Chris Craft  
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John Hacker  
and others

KROH TOPS are made right and fit right. Honest work and best grade of materials have made Kroh Tops the choice of America's best known runabout builders and designers. Send for our catalog, showing a complete line of Boat Tops, Spray Hoods, Life Preservers, Cushions and Pillows.

Kroh Tops are Rust-Proof, Sun-Proof and Water-Proof  
C. Z. Kroh Mfg. Co., 1920 Linwood Ave., Toledo, O.

## Take Pride In Clean Bilge

(Continued from page 184)

proper thing. The fresh air from the cowl travels through the duct to the bilge, through the bilge to the space under the after deck, where it is disposed of by means of clam shell ventilators near the sheer or by automatic suction ventilators operating on the principle of the automatic bilge drainers.

With provisions for ventilation and preventing the entrance of dirt and grease into the bilge, we will still be unable to keep the bilge absolutely clean. There is a scum or slime that forms on stagnant water and collects on everything that it comes in contact with. The formation of this slime can be prevented only by pumping out the bilge at frequent intervals and rinsing with clean water. A hose under pressure would be fine for this purpose.

W. B. M., Newburgh, N. Y.

## Metal Plate Looks Well

(Continued from page 60)

brushing lacquer, as it handles and dries well. Two or three coats, with intervening dryings at 80 degrees or more, if possible, make the letters stand out well. When comparatively dull colors are employed or the climate is severe, a fourth coat is worth the added time and expense.

D. McC., Cleveland, O.

## A Name Plate

WHAT'S in a name, or more truly in this case, a name plate? The name itself may or may not reflect or signify the characteristics of the boat or the personality of its owner: but a poorly executed job of painted lettering or an inferior name plate will detract from the best appointed craft and will make the owners and his friends feel that all is not ship shape.

The type of nameplate for your boat should be selected with an eye for consistency. If the boat is a sleek mahogany planked runabout with nickelized fittings the lettering should be of nickelized metal. Finished cast brass letters and numerals are obtainable at most ship chandlers at a reasonable figure. These may be plated with nickel, silver, or chromium to match other hardware, and may be fastened directly to the hull with flat-head screws. Such letters are easily removed for painting the hull and as the screw holes are easily seen it is an easy matter to replace them in their original positions.

A better scheme however is to fasten cast brass or bronze letters, either stock patterns or those cast to your order from patterns made by a pattern maker, to a piece of 8 or 10 gauge sheet brass. The best method of attachment is to rivet the cast pieces to the plate with countersunk copper rivets. This plate may be cut to any desired shape and after all holes are bored and all rough spots filed smooth, the entire assembly can be electro-plated and attached to the hull with a sufficient number of wood screws of the same color metal.

The accompanying sketches suggest several styles of cast letters and also a combination of name and registry number on one plate. If oblique letters are made, care should be exercised to make sure that the set for the starboard side slant opposite to those for the port side.

Another neat appearing and very satisfactory name plate for most types of cruisers and runabouts is made of a piece of hard wood, preferably Siamese teak, quarter sawed. This is cut to the desired shape and the edges either chamfered or made off with a beading plane. If the side of the hull has a great flare or is exceedingly convex the pieces should be steamed or otherwise shaped to conform to the curvature before any carving is attempted. The lettering should be sketched on the piece and sharp carving tools used for the cutting. A good pattern maker could do this work for little cost and produce an entirely satisfactory piece of work. The finished piece should be stained and two coats of good spar varnish applied. The gold leaf could be best applied to the sunken letters by a sign painter. With this done apply another coat of spar varnish to the entire surface of the name plate. The finished plate should be fastened to the hull with at least four oval head wood screws, with stamped countersunk washers.

A method for preserving the outline of a good job of painted lettering on the hull is to trace the outline with a small V carving tool or with a sharp chisel about one inch wide. The indentations should be about one-eighth of an inch deep and of uniform width. When refinishing the hull the body paint may be applied with utter disregard for the lettering; and at the proper time the lettering paint is easily applied within the sunken outlines. Most boats, regardless of the style or number of nameplates, usually have the name and the home port painted directly upon the transom. This being the case, the above system will prove to be a help.

E. F. A., Oakland, Calif.

# SMOOTH SAILING ALWAYS with Exides Aboard

Double cabin, bridge deck cruiser built by the Dawn Shipbuilding Corporation. Exide Yacht Batteries are now standard equipment in boats built by this company.



Four-cell tray of Exide-Ironclad Yacht Battery. Type MVA. Fifteen such trays constitute a 115-volt battery.



**These rugged yacht batteries  
handle every electrical task . . .  
smoothly, reliably, efficiently**

WITH Exides in your boat, you can be assured of abundant, dependable electric power at all times—under all conditions. Auxiliary pumps, lights, refrigeration, radio, hoists . . . Exide-Ironclad Yacht Batteries handle these tasks easily—dependably—with power to spare.

Because of their rugged construction, they require almost no attention. Each cell is completely sealed. And the unique slotted rubber tubes of their positive plates guarantee long, economical service . . . ample reserve power . . . consistently high voltage. These qualities account for the fact that each year more and more boat builders and boat-owners are

buying Exide Batteries.

There is an Exide representative in practically every important coast and inland port to help you choose the right battery for your boat. And the Exide operating service is available in nineteen cities—to inspect your present Exide . . . make sure it is ready for the coming season . . . tell you how to get the most out of it.

For more detailed information, write our Philadelphia office. We'll be glad to put you in touch with the branch nearest you.



An Exide-Ironclad Battery cell cut away to show method of assembly of positive plates and separators

## Exide IRONCLAD YACHT BATTERIES

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia

Exide Batteries of Canada, Limited, Toronto

Mention MoToR BOATING, 57th St. at Eighth Ave., New York

## YARD & SHOP

(Continued from page 96)

### DETROIT'S FIRST BOAT SHOW

Detroit will have its first Boat Show April 20 to 27 in Convention Hall, one of the largest structures of its kind in the west. While Detroit is one of the country's boating centers and numbers thousands of every type of water craft, this is the first time that its yachtsmen will have an opportunity to see displayed all of the products of the marine industry from a tachometer for the engine to the finished cruiser.

The exhibition is to be known as the Detroit Outdoor Life, Motor Boat and Sportsman show, and the exhibition space in Convention Hall will exceed 80,000 square feet. The motor boat display will be most complete with departments for the engines, both outboard and inboard, boat hardware, the finished product and all the accessories including furnishings. Space has already been obtained by a number of the country's leading outboard hull builders, runabout and stock cruiser manufacturers. The dates of the show are most favorable as this is the time of the year that the yachtsmen are preparing to start the season and put their boats in the water.

### STAMFORD MOTOR BOAT SHOW

Good news for all the outboard motor fraternity and ship lovers is that there is to be a motor boat show in Stamford, Conn. that will surpass anything of its kind ever held in this locality. Something in the neighborhood of 75,000 tickets are being issued for the show with the demand steadily increasing.

Exhibitors from all over the country have reserved space and by the time the show opens there will be more than 40 boats on display. In addition to boats there are to be extensive exhibits of motor boat accessories.

During the period of the show, a race will be staged between well known racing drivers. A series of other races will also be inaugurated during the period of the show. These races will be sponsored by the Lockwood & Palmer Company and run under the auspices of the newly organized Stamford Outboard Motor Boat Association. Prizes will consist of cups with alternate prizes of boat equipment. Besides the series of races, plans are being formulated for a Stamford New York marathon which is arousing considerable interest.

The show will be held in the Lockwood & Palmer store in Stamford and will run from April first to tenth.

### CHICAGO TO HAVE BOAT SHOW

The success of the recent Motor Boat Show in New York City at which time over \$5,000,000 worth of boats, motors, and marine equipment was disposed of, has given an added stimulus to public interest in the coming Out-Door Life Exposition and Motor Boat Show to be held in the Coliseum, Chicago, May 6 to 11.

The increasing interest in outboard motors and the sport of boating has caused the management of the Chicago Exposition to arrange for more floor space devoted to this industry than ever before and a number of well known manufacturers of outboard motors and boats have signified their intention of devoting every sales effort to sell their merchandise at the Exposition.

The Seventh National Out-Door Life Exposition and Motor Boat Show offers even greater possibilities to boat manufacturers and to followers of the fascinating sport than the New York displays inasmuch as the great territory of 20,000 inland lakes, rivers, and the Great Lakes is at the disposal of the boat enthusiast. That the sportsman has caught the spirit of the sport and awakened to his opportunity is evidenced by the growing demand for every kind of boat and boat equipment.

### PACIFIC BOAT SHOW

With the interior of San Francisco's municipal auditorium made over until it represents the deck of an ocean liner, with a stage on the bridge and a deckload of assorted motor boats sharing interest with the lifeboats hanging over the rails, the Pacific Boat Show to be held from April 27 to May 4 promises enough of novelty and interest that predictions are freely made it will attract more than 100,000 attendance.

In conjunction with the Auditorium exhibits, a week of outdoor racing will be held in the bay off the St. Francis Yacht Club. The feature of the proposed program is a 500-mile ocean race from Los Angeles to San Francisco. The Northern California Outboard Motor Association has scheduled a 115-mile race from Sacramento to San Francisco, to finish about noon Saturday, the opening day. In addition, the outboards will stage a week of racing on the bay. There will also be a motor and sail regatta during the same time, as well as an aquatic parade of every pleasure boat in commission on the bay.

That the boating industry has recognized the importance of a western show to support the annual New York Show, may be judged from the fact that practically every large manufacturer of nationally known watercraft has reserved space. All San Francisco boat manufacturers and representatives have entered, as well as several from Puget Sound and Los Angeles.

The impression prevails that the attendance will closely approximate that of the New York Motor Boat Show, and sponsors of the affair have already made plans for holding the show annually.

### NEW CITY ISLAND BROKERAGE OFFICE

Drake H. Sparkman, Yacht Broker of 11 East 44th Street, New York City, announces the opening of a branch office at 205 City Island Avenue, City Island, directly opposite Nevins Shipyard.

This office will be open daily including Saturdays and Sundays.

In view of the fact that City Island is the center of the yacht storage and yacht building activities in the vicinity of New York City, Mr. Sparkman feels that with this branch office he will be able to render more efficient service than ever before.

### TIDE TABLE, NEW YORK HARBOR AND VICINITY, 1929

This publication, issued annually, gives for each day of the year the predicted times of high and low water at Governors Island, N. Y. and tidal differences by means of which corresponding predictions may be readily obtained for numerous other places in New York Harbor and vicinity, including Long Island Sound and the outer coast. In addition to the tidal data, the publication also includes the phases of the moon (incorporated in the table of predictions), and the times of sunrise, sunset, moonrise, and moonset for New York City.

This publication, issued in convenient pocket size, is prepared primarily for the use of those interested in the rise and fall of the tide in the numerous waterways in the vicinity of New York City. Local watermen, yachtsmen, fishermen, hunters, bathers, and others will find this small pamphlet a useful handbook.

The sale price of this publication is five cents per copy. Postage stamps not acceptable. Copies may be obtained from the Director, Coast and Geodetic Survey, Washington, D. C. or from the Inspector, Coast and Geodetic Survey Field Station, 78 Broad Street, New York City.

(Continued on page 192)



*A smart 26-foot fast runabout built by S. E. Saunders, England, for Duke of Westminster, is powered with an American Kermath engine of 150 h.p. and does 38 miles*

# from Hacker



*“.... We have used Kuhls’ Elastic Seam Composition for many years for the reason that we have never been able to find anything to equal it, and we will continue for the same reason.”*

HACKER BOAT COMPANY  
(signed) H. P. Hellmuth, Secretary

Kuhls’ Elastic Seam Composition is made in three grades—each for a particular purpose.  
Use—

No. 1  
for deck seams

No. 2  
for hull seams

No. 3  
for laying canvas  
on decks, housing  
and hatches. Also  
for canvasing and  
repairing canoes.

KUHLS’ Elastic Seam Composition when applied becomes an integral part of the hull. It is easily worked, sets semi-hard and never becomes brittle. Its elasticity is permanent and compensates for the swelling and shrinkage of planking. Unaffected by climatic conditions, Kuhls’ Elastic Seam Composition insures a watertight seam at all times even under the most gruelling service conditions. That is why Kuhls’ is used by builders of high grade boats such as Hacker Dolphin Runabouts.

Kuhls’ Elastic Seam Compositions are made in six colors: White, Gray, Yellow, Black, Mahogany and Teak. Sold by marine supply dealers and leading hardware stores everywhere.

## H. B. FRED KUHLS

Sole Manufacturers—Established 1889

.Sixty-Fifth Street and Third Ave. Brooklyn, N. Y.

Elastic  
Trowel Cement  
Elastic  
Deck Varnish



### Build a Model SPEED BOAT

Price \$10.00

Any boy can build this  
36-inch Racer

From the simple instructions we furnish, together with complete parts, it is an easy matter for any boy to build the 36-inch DOLPHIN speed boat. It is the highest class power boat model on the market—not merely a toy, but a trim speedster that performs just like any large runabout. Construction set includes frames and mahogany keel, chines, clamps, stem and stern, cut and shaped, ready for assembling. Also brads, screws and glue. Price complete, without motor, \$10.00 F.O.B. See our catalog for prices and descriptions of suitable power plants.

Get This Book →

Every model builder should have a copy of "Scale Models." It contains useful information on the construction of model boats and ship models, besides much data on the history of steam engines, nautical terms, knots, hitches and splices, hints on painting and finishing, etc. Send 25 cents today for this book or get it

FREE with any Boucher boat  
or engine you order.



**Boucher Inc**  
HEADQUARTERS FOR MODEL MAKERS FOR 22 YEARS  
415 MADISON AVE. Dept. M. A. NEW YORK

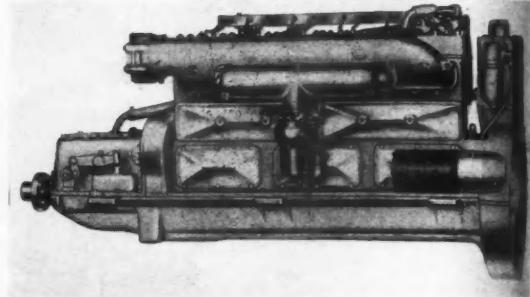
TOYS that are more than just TOYS

## YARD & SHOP

(Continued from page 190)

### POWERFUL NEW MARINE ENGINE

The new 200 h. p. Kermath marine engine is the latest and most powerful addition to the well known Kermath line and has been designed to supply a power unit especially suited to the needs of fast runabouts, cruisers and express cruisers. Like all of the Kermath models, it embodies the most advanced principles of marine engineering in its design and construction and provides an unusually efficient power plant. Some of the features which have been built into this engine are the new reverse gear, which eliminates the use of any gears when going ahead, new type of oil filter composed of coils of fine copper discs, offering no restriction to the flow of oil, and a motor driven gasoline pump which is mechanical and not electrical in operation. An extra heavy seven bearing crankshaft of nickel alloy steel helps materially in producing a smooth, even flow of power.



The 1929 Kermath 125 h.p. six cylinder engine will turn up to 2000 revolutions

The six cylinder 150 h.p. L head Kermath is being introduced as a new contribution to the marine engine field, and is offered in both medium duty design for large cruisers and as a high speed engine for light cruisers, express cruisers, and fast runabouts. Outwardly, it has a neat, compact appearance that suggests an easy installation to the boat builders, and an accessibility that provides the owner with a new degree of boating satisfaction.

An oil filter, attached to the large oil reservoir tank above flywheel housing, dual geared waterpump of advanced design, single carburetor, and dual Delco ignition, are outward evidence of the advanced design incorporated in this Kermath model.

Besides a 2½-inch seven bearing crankshaft that is machined all over for perfect balance, there are numerous other engineering advancements that are worthy of mention. Pistons are Lykite Invar Strut type, ground and fitted with oil return rings. Bearings are bronze back babbitt lined, and are of the interchangeable type, requiring no scraping or fitting. Connecting rods are machined all over and finely balanced to eliminate engine vibration.

A new type clutch and reverse gear is now used with this model, which eliminates the need for driving through any gears in forward speed. Power from the engine is transmitted direct through a stout drum to the propeller shaft. This feature is quite an important one, serving the ends of economy and in greater reverse gear dependability in such a high powered engine. A new illustrated catalog of the complete Kermath series of engines has just been prepared and can be had on request.

### AIRSHIPS TO TRY ALBANY RACE

At least twenty owners of various types of Airships outboard boats are planning to take part in the Albany-New York contest on April 20. So many owners of these boats have signified their intention of competing that V. Withstandley & Company of New York have felt prompted to offer a special trophy for the first Airships boat to complete this hard run regardless of the size or class of engine used. Several prominent outboard drivers have formed a team which consists of Kirk Ames, Ralph Oakley and Ted Roberts racing under the expert guidance of Victor Withstandley will all compete in the race using engines of different classes. Kirk Ames, it will be recalled, was the winner of the \$100 Haynes Griffin prize last year being the first boat to reach New York. Withstandley in his Flyer Fish III finished fifth in the total score but was unable to do better due to difficulties with fuel but his experience will stand him in good stead and this year he anticipates being well up with the leaders. The new design Airships boats which are used are believed to be the fastest type hulls yet devised and only the performance of the engine will interfere with the success of these boats in the coming contests.

(Continued on page 196)

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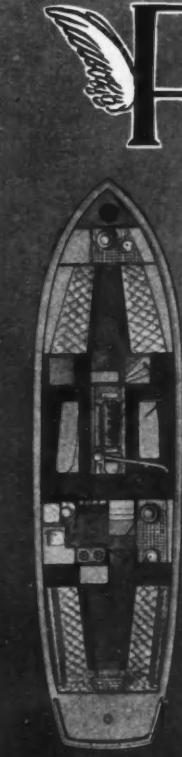
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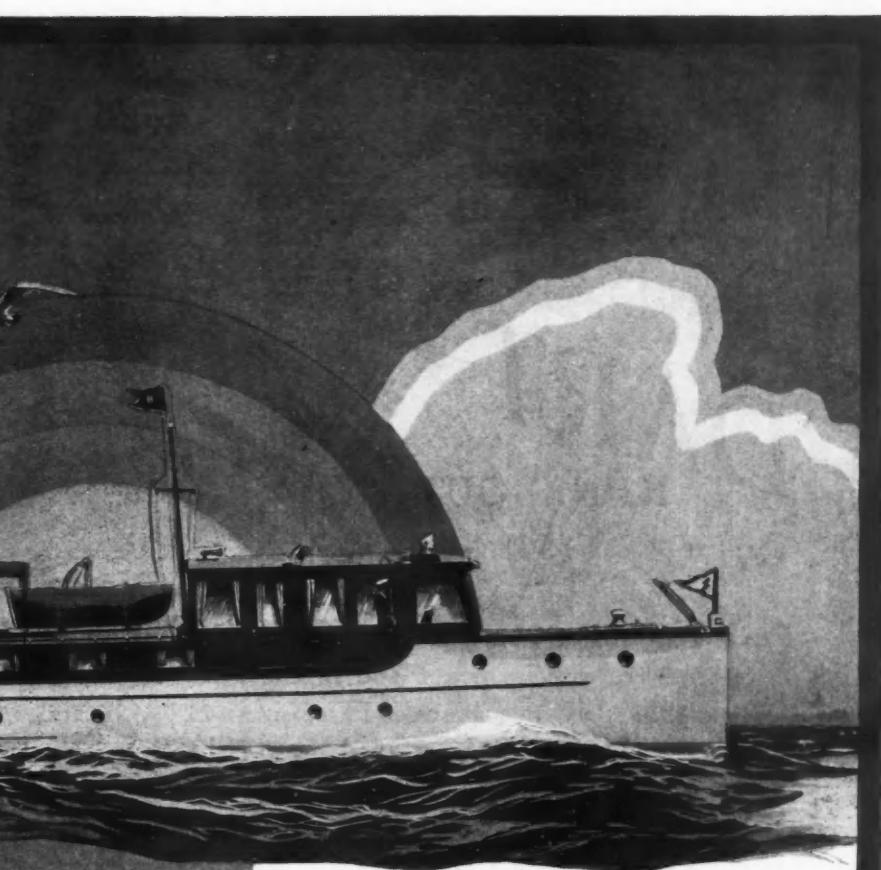
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Mention MOTOR BOATING, 57th St. at Eighth Ave., New York



# Fleetwing

*The Cruiser Supreme*

## 40

The slim, striking beauty of its lines, the luxurious refinement of its appointments, and the sturdy, finished excellence of its construction mark the Fleetwing De Luxe Forty the outstanding cruiser of the day. In its two choicely decorated, completely furnished cabins, in its roomy closed-in bridge deck, its airy, lazy canopy covered after deck you will find more than room enough for the comfortable accommodation of seven persons. An exclusive Fleetwing feature, the spoon bottom construction, assures smooth riding in any weather. The power plant, a six-cylinder Fleetwing Buda engine, gives a speed of 12 to 14 miles per hour.

Other sizes of Fleetwing models from 28 ft. to 55 ft.

Sales representative of —

*The Greenport Basin & Construction Co.  
Salisbury Shipbuilding Corp.  
Thousand Island Marine Construction Co., Inc.*

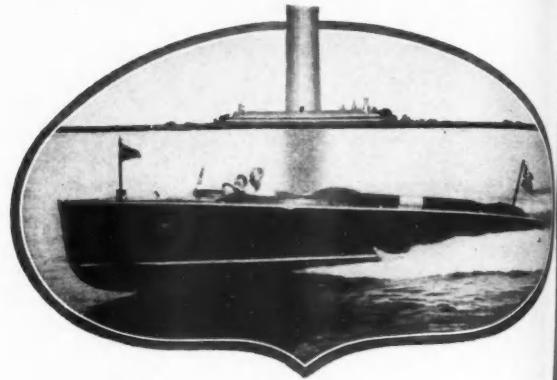
**FLEETWING YACHT & SHIPBUILDING CORP.**

Frank V. Bozick, Director of Sales

250 WEST 57th STREET, NEW YORK CITY, N. Y.

# WILBUR H. YOUNG & CO.

## *The* DART RUNABOUT



**I**N beauty of line, excellence of workmanship and finish, luxury and completeness of appointments, and in eager response to wheel and throttle, Dart runabouts are unsurpassed. Three sizes: 22½, 26 and 30 feet, with the twenty-six and thirty-footers available in either open or sedan type and with speeds up to 40 M.P.H., there is a Dart runabout to meet every requirement.

### DEE WITE

The ideal outboard runabout embodying all the desirable features of the expensive, high powered, inboard craft. Built of African mahogany with double planked bottom, fast clean lines, and excellent workmanship, the Dee Wite represents the ultimate in outboard construction. Speeds up to 35 miles per hour with latest motors.

### SKIBOARD

The Skiboard provides the most thrilling of all water sports. It is a self-propelled aquaplane, non-sinkable and non-capsizable, which can be driven by any make or size of outboard engine. It skims across the water at exhilarating speed and is guided by simply shifting the weight of the body in the direction to which you want to travel.

### HERBST

**O**wn a winner! Get a Herbst "Special" and be numbered among the winners who are consistently winning and breaking records. There is a Herbst Special for every racing class. For those who want Herbst quality in a runabout, the Herbst Viking is offered in 14 and 17-ft. lengths.

### SEAGOER

The handsome new 1929 Seagoer combines in one trim 28-foot hull, the accommodations of a cruiser, the speed of a runabout, and the dependability of the fine commuter. Every facility for regular commuting or family day trips. Powered with the Gray motor, its speed ranges from 13 to 22 M.P.H., depending on the engine selected. Larger power plants give up to 32 M.P.H.

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250 W. 57th St.

New York, N. Y.

Telephone: Circle 2580

# If you built motor boat engines



HARBOR of Miami, Florida. This map is one of a series. Watch for succeeding ones. Gargoyle Mobiloil is on sale here and in other ports throughout the world.

## Make this chart your guide

If your engine is not listed here, write to the Vacuum Oil Company, 61 Broadway, New York. The winter recommendations specified on this Chart should be followed when freezing temperatures below 32° F. are encountered, unless the engine is kept warm while not in operation.

NAME OF MOTOR BOAT ENGINES	1928		1927		1926		1925	
	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter
Buda, BM-6, BM-6S, GM-6, BM-4,6S	BB	A	BB	A	BB	A	BB	BB
Calle Master 5-Speed Twin	A	A	B	B	A	BB	A	BB
" All other outboards	A	A	A	A	A	A	A	A
Chrysler Imperial Marine	B	A	B	A	B	A	B	A
Elto	A	A	A	A	A	A	A	A
Evimotor	A	A	A	A	A	A	A	A
Gray, 6-30, 6-72, H-75, 8-100	BB	A	BB	A	BB	A	BB	BB
" A-6 & Z-6	A	A	BB	BB	A	BB	A	BB
" O-1, 2-10, 2-cycle	A	A	A	A	A	A	A	A
" All other models	A	Arc.	A	Arc.	A	Arc.	A	Arc.
Hall Scott	A	A	A	A	A	A	A	A
Johnson	A	A	A	A	A	A	A	A
Kermath, 1 to 20 h.p. inclusive	A	Arc.	A	Arc.	A	Arc.	A	Arc.
" 50, 70 & 100	BB	A	BB	A	BB	A	BB	BB
" 9, 85, 125, 150	B	A	B	A	B	A	B	A
" All other models	B	A	B	A	B	A	B	A
Lambrop, 100 & Mystery	BB							
" All other models	A	A	A	A	A	A	A	A
Lockwood, 41	A	A	A	A	A	A	A	A
" All other models	A	A	A	A	A	A	A	A
Palmer, L.H. Little Huskie	A	Arc.	A	Arc.	A	Arc.	A	Arc.
" 2-cycle	A	A	A	A	A	A	A	A
" NK, NK, F, ZR, PNR	B	A	B	A	B	A	B	A
" All other models	Arc.							
Red Wing Thorobred, Red Top-BB4, BB6	BB	A	BB	A	BB	A	BB	A
" High Speed	A	Arc.	A	Arc.	A	Arc.	A	Arc.
Scripps, F6 Jr., Gold Cup, G6, H6	B	A	B	A	BB	A	BB	A
" F4 & F6	BB	A	BB	A	BB	A	BB	A
" All other models	A	Arc.	A	Arc.	A	Arc.	A	Arc.
Standard, N. Y.	B	A	B	A	B	A	B	A
Stearns Extra Reserve	B	A	B	A	B	A	B	A
Stearns Neptune	A	Arc.	A	Arc.	A	Arc.	A	Arc.
" All other models	B	A	B	A	B	A	B	A
Universal Superfoil GLR	BB	A	BB	A	BB	A	BB	A
" All other models	A	Arc.	A	Arc.	A	Arc.	A	Arc.

Mention MOTOR BOATING, 57th St. at Eighth Ave., New York

—you would want all the facts before you recommended any one brand of oil to your customers.

—you would want to be sure that this oil would materially contribute to the smooth-running of your engines.

By putting yourself in the engine builder's place you can better appreciate what this fact means:—61 of the leading motor boat engine builders attach brass plates to all their engines *recommending the use of Mobiloil*.

Mobiloil Quality has won this strong support from leading manufacturers.

Mobiloil Quality will win your strong support, too. Try it in your engine.

You are always *sure* with Mobiloil.

## How to buy:

For outboard motors—we suggest the 1-quart or 1-gallon cans of Mobiloil.

For small inboard motor craft—the 1-gallon or 5-gallon cans of Mobiloil.

For cruisers—the 10-gallon drum, the 30-gallon drum, or 55-gallon drum of Mobiloil, all with convenient leak-proof faucets.

The World's Quality Oil  
**Mobiloil**  
VACUUM OIL COMPANY

**GARGOYLE**  
**Mobiloil**  
Look for the  
red Gargoyle trade-mark  
on the Mobiloil container

# Marine Glue

## FERDICO Liquid Aviation Glue

A resilient, tenacious, durable glue, waterproof, unsurpassed for battens, double-planking, chines, keelsons, and tenons. Does not harden and brittle but retains its tenacity and resiliency indefinitely.

### Jeffery's C Quality Marine Glue

For use under canvas

### STANZALL A waterproof joint glue

Send for our free booklet  
on Marine Glue Uses

UNDER CANVAS  
C QUALITY GLUE

BATTEN SEAMS  
AVIATION GLUE

AVIATION  
GLUE  
CHINES

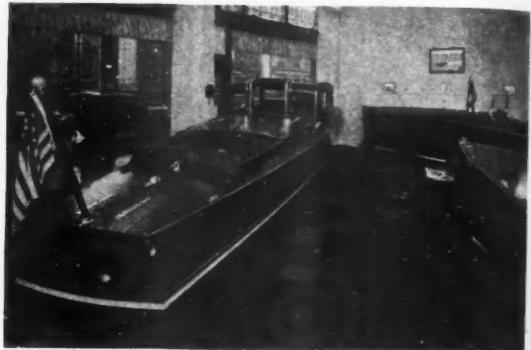


L.W. Ferdinand & Co.

152 Kneeland Street, Boston, Mass.

## YARD & SHOP (Continued from page 192) BOATS ON BROADWAY

Automobile Row in New York City, that portion of Broadway which contains the finest display rooms of the several motor cars was brightened recently by the addition of a remarkable boat display to the attractions of this famous street. Gar Wood, Inc., has located a showroom at a prominent point on this thoroughfare and is the first one to display his boats along with the fine motor cars on this street. Inside of the show windows one can see one each of the model 30 and 40 and 50 finished in mahogany, jet black and walnut. The location in the midst of the high class automobile district has already proven its advantages as many passers by have been tempted by the display to step in and learn more of this new form of high speed transportation.



The Broadway showroom of Gar Wood, Inc., in charge Arthur J. Utz

### MOTOR MANUFACTURER GETS NEW EXECUTIVE

Announcement has recently been made of the appointment of a new vice-president and general sales manager by Van Blerck Motors, Inc. Nick Rost is the new executive, and while he has been away from the industry for a number of years, he brings to the Van Blerck Company a wide experience gained in earlier years through his associations with the Loew Victor Engine Company and the Duesenberg Motors Corporation in the capacity of sales manager.

### Pieces of Eight

Considerable interest has been manifested by readers of MoToR BoatinG in the little black sloop, the picture of which has appeared from time to time as the cover for the outboard section of the magazine. For the benefit of those who took especial interest in this little ship we have received some particulars from the owner and are telling of it here.

Her name is Pieces of Eight and her owner is William J. Beach of Miami, Florida. Mr. Beach tells us that she is the result of a sort of dream of his—that he had built a great many model sail boats and had spent hours over drafting boards and saw no good reason why he could not build a little ship which would fulfill his dreams. So Pieces of Eight was built by Mr. Beach himself from his own plans at Port Orange, Florida.

She is 18½ feet long, marconi rigged. Without attempting to use a lot of costly interior work, the owner put into her construction the best material that could be secured and the result was a boat that has proved entirely successful from every angle. Florida pine keel, cypress fin, Florida hickory ribs, Florida cypress planking, copper riveted, brass screwed, and bolted with galvanized iron—all combine to make her a sturdy little craft that has weathered storms and gales that have been troublesome for many a larger boat, according to Mr. Beach.

The owner's business is the modeling of historic scenes and characters in miniature and his specialty is in the Pirate field. One of the principal reasons for the building of the boat was to provide Mr. Beach with a means of cruising along the Florida coast in historical research work, getting authentic material and atmosphere for his work, and ideas for settings in various scenes. Aside from this, a secondary object of his cruising was a private search for buried treasure. (Word recently received from Mr. Beach says that he has been successful in locating on a coral reef, an old Spanish coin dating back to 1732. He states that he is delighted with his find and feels that his treasure hunt has been successful.)

Pieces of Eight has carried her owner safely on extended trips through all sorts of gales and weather conditions in Florida waters including a trip into the Gulf Stream and in every case has proved herself a very able and successful little boat.

(Continued on page 200)

## ALL WOOL YACHT FLAGS Finest Grade Fast Colors



COLLEGEVILLE FLAG & MFG. CO.  
1600 Walnut St. Philadelphia, Pa.

## PENN YAN MOTODINGHIES

A DINK that travels 30 M.P.H.! Why endure the tedium of a dinghy or a round bilge rowboat? The new Penn Yan Motodinghies are designed for high speed service; they are extremely seaworthy and smooth running. Ideal for hunting, fishing, and general outboard usage.

The 9 footer for A & B class motors.....

\$145

The 11 footer for B & C class motors.....

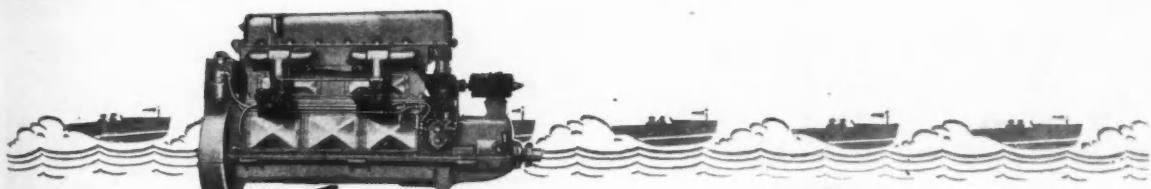
\$165

Made by the largest manufacturers of dinghies in the U. S. A. Rowing and sailing dinghies of all sizes. Outboard motor boats for racing and family use. Send for WATER THRILLS, our new 48-page catalog.

PENN YAN BOAT COMPANY, Inc.

186 WATER STREET

PENN YAN, N. Y.



# KERMATH

## A New Catalog -

**full of Valuable Information  
Send for Your copy Today!**

Here is a brand new catalog which fully describes the full line of world famous boat engines.

This handbook enables you to examine, at your leisure, the specifications and merits of 15 different motor sizes, each, we believe, the most efficient power plant, in its class, ever produced.

The Kermath line represents a full range—from the sturdy little 3 H.P. single cylinder design to the latest Kermath achievement—the 200 H.P. model.

In this book are full descriptions of each engine, as well as horsepower development charts and detailed sizes and weights.

You will also find a great variety of illustrations showing you typical Kermath installations in work boats, launches, auxiliaries, runabouts and cruisers.

Kermath's complete engineering facilities—Kermath's modern production methods—Kermath's advanced designs—and Kermath's high quality standards are explained in detail.

To quote from the introductory page, "You are urged to make use of our special advisory department which is maintained at the factory where specific information covering your individual problems may be had for the asking."

*Write for your copy today.*

**3 to 200 H.P.**

**\$135 to \$2300**

### KERMATH MANUFACTURING COMPANY

5879 Commonwealth Avenue, Detroit, Michigan  
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New York Show Rooms—5th Avenue and 15th Street

**"A KERMATH ALWAYS RUNS"**



**A Most Complete Book on Marine Motors  
Your Copy is Ready for You**

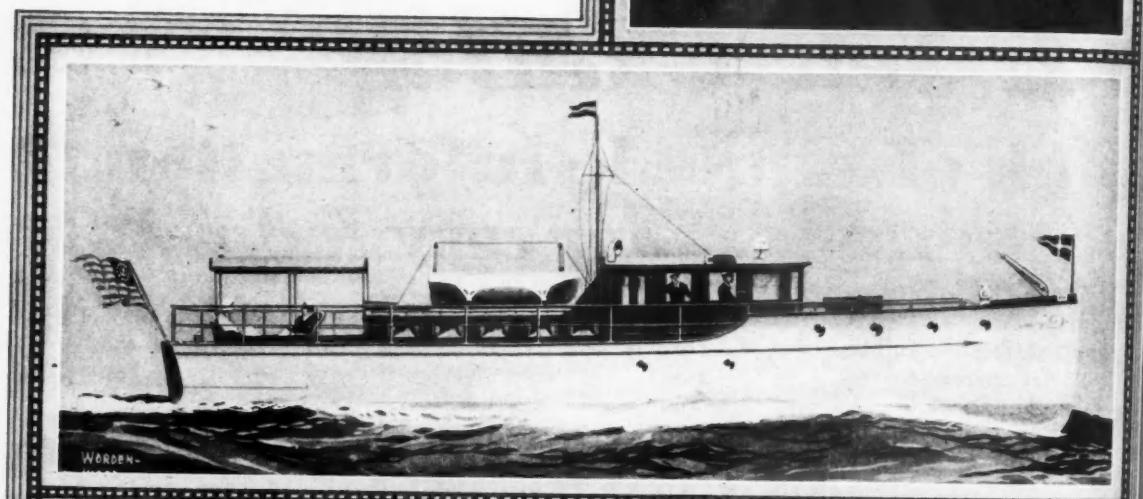


# VINYARD

## Twin-Screw

# Cruising Yacht

Gives  
Solid Comfort



THE high degree of luxurious comfort given in the Vinyard Fifty-Foot Twin-Screw Cruising Yacht is not attained at the sacrifice of such vital requirements as seaworthiness, reliability, speed and beauty. Nor has any detail been omitted to make it complete in all appointments. The owner and his guests are assured of every convenience to which they are accustomed ashore, with ample facilities for a party of six or eight on an extended cruise.

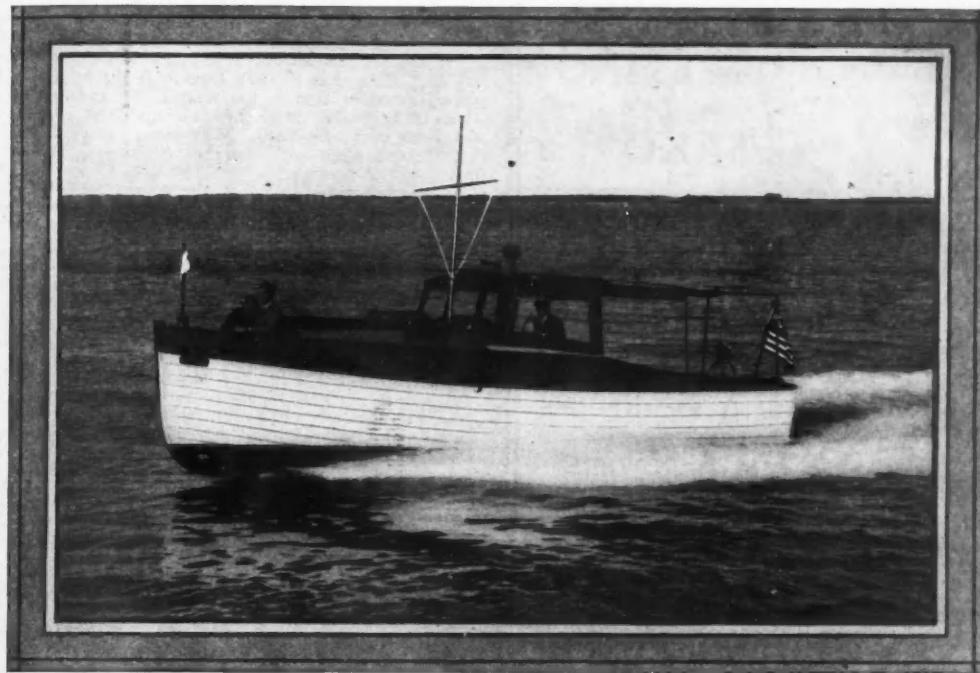
Delco electric lighting plant, Delco water pressure system, Frigidaire electric refrigerator and CO-2 fire protection are but a few of the many modern essentials furnished as regular equipment. Choice of two 150 H.P. Sterling or Kermath engines. Speed 16 miles per hour. Write for particulars.

We also have under construction 55-foot Twin-screw cruisers. Details on request.

VINYARD SHIPBUILDING CO.

Designers and Builders of Yachts  
and Cruisers of the Highest Class

MILFORD,  
DELAWARE, U.S.A.



## W-C makes GOOD BOATS Better

Even landlubbers appreciate smartness of line and beauty of fittings in a well-turned craft. But experienced seamen know full well that beauty in boats, as in damsels, is sometimes only skin-deep . . . they have seen port lights admit water where only sunlight should penetrate . . . they've watched smart-looking craft flounder helplessly because a faulty anchor failed at the crucial moment.

And when one of these experienced ones purchases a boat, he examines each detail and fitting with microscopic care. For he knows that money "saved" is trouble gained when cheap or light-weight hardware is used.

Wise boat builders are finding it pays to be able to say, "Yes, W-C Hardware is used throughout." And wise boat buyers ask, "And hardware, is it W-C?"

W-C Dependable Marine Hardware is available to everyone who owns or contemplates owning a boat. Most every dealer handles W-C Hardware and will help you select the items that best fill your needs. Or if you prefer, write us at Middletown

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The last word in  
searchlights. Low  
voltage—High  
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Perko Cast Bronze  
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## SPRING OUTFITTING

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Perko Products include a complete line of these products for use on outboard motor boats, etc.

The Standard Equipment for all classes of boats from Canoes to Ocean Liners.

Write for Booklet No. 46

PERKINS MARINE LAMP CO.

1942 Pitkin Avenue

Brooklyn, N. Y.

## YARD & SHOP

(Continued from page 196)

### ANNUAL PALM BEACH REGATTA

At the seventh annual Washington's Birthday Regatta held at West Palm Beach, Dick Loynes at the wheel of Miss California came in first in the limited 151 hydroplane class with times of 6 minutes, 28 seconds and 6 minutes, 23 seconds for the two heats of 5 miles each. Miss Rioco I driven by J. H. Talbot took second place with times of 6 minutes, 59 seconds and 6 minutes, 31.2 seconds.

In the unlimited 151 class, the course was 10 miles covered twice in two heats. John McGarva, driving Baby Tarpon, captured first place covering the 10 miles in times of 13:41 and 14:13 and Miss Rioco III piloted by Ralph Snoddy placed second in the first heat with a time of 13 minutes, 40 seconds.

The runabouts competed in three heats, two 5 miles each and one of 10 miles. Adriatic, a standard 1929 model 26-footer Hacker, powered with a 200 h.p. Kermath, was the winner with times for the heats of 7:45, 7:42 and 14:49.3. Mr. Lambert of St. Louis was Adriatic's successful driver. Ed Moore's Sneeze was second with 8:14, 8:10.3, and 16:58.3 for the various heats.

In the free for all outboard race, two 2½ mile heats, Malcolm Pope's Cyclone was the winner with times of 4:08 and 4:01.2 and Elmer Gresh's Lightning took first place with 4:36 4:38.2 and 4:19 in the respective heats. Class B open, three 2½ mile heats—J. P. Wilson's Goofy, Jr., winner with times of 5:33, 5:29.3 and 5:39.3. In the local races, K. Littrell's Sonny Boy took the C Class, Bob Kliener's Miss Behave the Class B, Jesse Frantz's Bo Bo the Free-For-All and also the Chance race.



Adriatic, a Kermath powered Hacker runabout which proved to be the winner in the runabout class at Palm Beach

## MOTOR BOATING

CAN BE BOUGHT  
AT YOUR NEWSSTAND

SAY TO YOUR NEWSDEALER  
"SAVE ME A COPY"

HE WILL BE GLAD  
TO RESERVE YOUR

MoToR BoatinG

For You

EVERY MONTH

### IMPROVED SEARCHLIGHTS

The Carlisle & Finch Company, 261 East Clifton Avenue, Cincinnati, Ohio, who have for about thirty-five years been manufacturing a fine line of electric arc searchlights for large steam-boats and ocean going vessels, also have a complete line of incandescent searchlights from 7 inches to 19 inches in diameter to be used on motor boats, launches, tugs and pleasure craft. A large number of the electric searchlights used by motor craft of all types on the lakes and rivers of the United States as well as on the waters of many foreign countries, were furnished by this company. Their searchlights have withstood the test many years. They are superior in efficiency, being specified by leading naval architects and prominent boat builders. The new electric controlled searchlight made by them has proved a great success. While the first cost is more than that of the old type rope control, the advantages are so great as to more than justify the extra cost. The ease and accuracy of movement wins the approval of every pilot who uses them. The Carlisle & Finch Company has recently brought out a six and one half inch searchlight that is much needed for the use of small boats where dry batteries or storage battery are necessary to supply the current.

### HARVARD AGAIN SELECTS SCRIPPS

Two new crew coaching boats are to be added to Harvard University's fleet and they are now in process at the yards of the Greenport Basin and Construction Company.

These new boats will be of the same type as three others used by the Harvard coaches, but somewhat shorter. The boats will be twenty feet long and their power plants are 60 hp. Scripps. In fact, all other Harvard coach boats have Scripps motors.

They are of special design and construction built especially for crew coaching. They will travel at a high rate of speed and still have a very small wake, thus not endangering the progress of the frail rowing shells. The motors must also be very quiet to permit the coach's voice to carry across to his crew.

Scripps motors are also found in the coach boats at Princeton University of Pennsylvania, Syracuse University and the University of Southern California.

(Continued on page 202)

# \$1,505,625 Chris-Craft Sales Establish World's Record



DURING the eight days of the New York Boat Show, Chris-Craft led the entire field in sales—convincing proof that the boating world is Chris-Craft minded. Two hundred and eighty six Chris-Craft were sold here, a record no other manufacturer has ever reached, or even approached. Here is a striking tribute to Chris-Craft's 43 years of leadership.

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22 to 38 feet 30 to 45 Miles an Hour  
82 to 225 Horsepower 6 to 26 Passengers

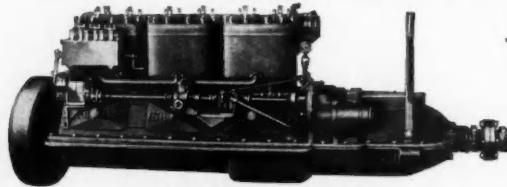
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Bore 5½" Stroke 7"

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## W. & J. TIEBOUT

118 Chambers St., New York, N. Y.

Complete Marine Hardware and Equipment

## YARD & SHOP

(Continued from page 200)

### HENRY FALK DIES SUDDENLY

Just as we go to press we learn of the sudden and entirely unexpected death of Henry Falk, member of the National Outboard Racing Commission recently organized and which has just formulated the new Outboard Racing Rules. He has long been actively associated in the affairs of the Mississippi Valley Power Boat Association in and around Houston, Texas, and his death will leave an irreplaceable gap in the ranks of the association.

### ELECTRIC STARTERS FOR DIESELS

None will dispute the convenience and advantages of electric starting and full bridge controls for yachts and work boats. Now this convenience can be had with small light weight yacht diesels. The Standard Motor Construction Company, Jersey City, now equips their 40-60 h.p. Standard diesel engine with Robert Bosch 32 volt starting motor mounted on the forward end of the engine on the starboard side. This motor can be used in connection with regular heavy duty 32 volt storage batteries. Generators for electric lights can also be furnished mounted on the engine.

On the bridge or in the pilot house at the steering wheel are located two small levers, one controlling the fuel pressure and the other shifting the cams. The reverse gear is also carried to the steering position and on the instrument board are mounted fuel pressure gauge, lubricating oil pressure gauge, air pressure gauge and volt meter. The whole installation is exceedingly simple and just as easy to operate as the usual bridge controls for gasoline engine. If desired, the air starting system may be retained, so that there are two systems of starting available, simply for the reason that one might allow the batteries to run down and in this case the air starter would be available.

### DAVE BECHTEL, A HARD WORKER

David S. Bechtel, Manager of the Marine Division of the United States Acceptance Corporation, Philadelphia, Pa., known in the yachting fields as Dave, has been swarped a Star by the Regatta Circuit Riders Club (R. C. 2) for special services rendered in assisting in the management of regattas held in various parts of the country. At Philadelphia he was appointed by the Chamber of Commerce and Merchants of that city to serve as Chairman of the Racing Committee of the Philadelphia Outboard Regatta, held on the Schuylkill River last August. This regatta was of special interest as Sir Thomas Lipton donated a magnificent cup to the Chamber of Commerce for a perpetual trophy. At the Miles River Regatta, St. Michaels, Maryland, Mr. Bechtel served on the Timers Committee; at the regatta held on the Cape Fear River, Wilmington, North Carolina, at which many records were broken, he served as flagman. With his connection with the United States Acceptance Corporation and the R. C. 2 he should help yachting in all its branches.

### NEW TWIN SCREW MOTOR TANKER

There is now under construction at the yard of the Sun Shipbuilding & Dry Dock Company of Chester, Pennsylvania, a twin screw motor tanker building to the order of the Sun Oil Company of Philadelphia for ocean service; it will also be used on the canal between Montreal and the Great Lakes.

The new vessel is to be 255 feet in length and powered with a pair of 6-cylinder Bessemer diesel engines for a 9½-knot speed.

The vessel was designed by the Sun Shipbuilding & Dry Dock Company and is entirely modern in every respect, having complete deck equipment, electric light plant, cold storage, hydro-electro steering gear, heating system, electric capstan, electric windlass, ventilating system and a cargo oil system arranged for rapid loading and discharging of liquid cargoes.

The vessel will be built under the highest class of the American Bureau of Shipping.

### A MOTOR FOR EVERY TYPE OF BOAT

The newest pamphlet of the Gray Marine Motor Company of Detroit gives one an excellent idea of the wide range of service performed by Gray motors in all parts of the world. More than sixty pages are devoted to testimonial letters and illustrations of a great many craft powered with each of the very complete line of Gray models. Work boats, pleasure boats, speed craft, fine yachts and standardized cruisers are all included, so that it should prove very helpful to the boater in selecting a new engine best suited to his particular requirement.

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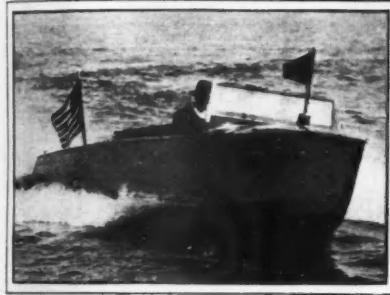
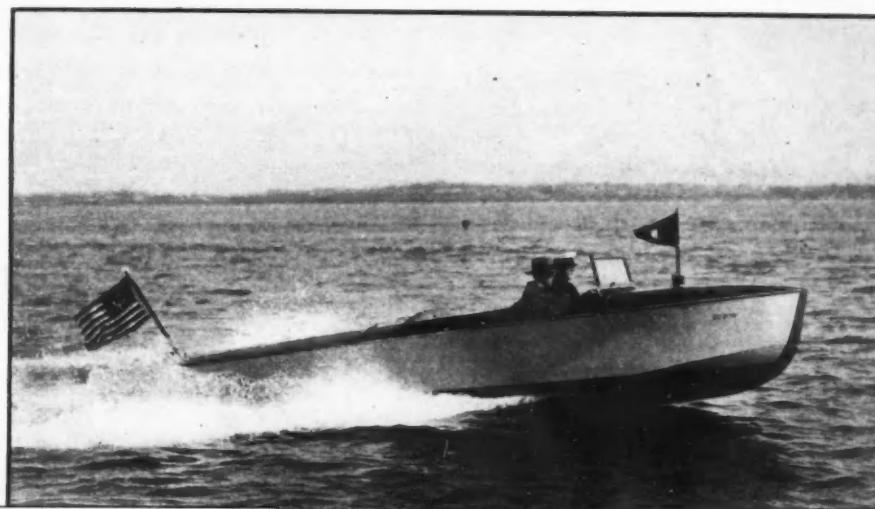
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Banks beautifully either way

30 mile speed in a choppy sea  
and still no pounding

Making sharp right hand turn at full speed

## The New 21-ft. FAYBOW

### A Notable Achievement in Runabout Design

... possessing features never before successfully incorporated in a boat of its dimensions.

Beautiful in design . . . sturdily built of mahogany and oak . . . seaworthy . . . luxuriously appointed and comfortable at high speed . . . a V-bottom craft that rides a rough sea as smoothly as a round bilge

boat . . . and economical to operate.

This model banks beautifully either way and can be turned about sharply at full speed. With Faybow 60 H. P. "Challenger" power plant, it will develop a speed of 30 miles an hour without pounding. A gem of marine architecture that operates like an up-to-the-minute motor car.

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For Tenders, Sea Skiffs, Runabouts, and Small Cruisers

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It is a complete power unit; more power; compact; free from freak features; simple, sturdy, economical in first cost; inexpensive to operate, long lived; thoroughly standardized as to parts: Bosch magneto; Joes reverse gear; Atwater Kent; Zenith or Schebler carburetor. And it is the lowest priced, complete 4-cylinder motor of its size in America. An engine that will give you 1½ to 2 m.p.h. more speed, with less cost, less weight and longer life.

Put the Power of Niagara in Your Boat

Other models 5 H.P. to 120 H.P.

Write for details (state size of boat and H.P. interested in.)

**NIAGARA MOTORS CORP.**  
Box 308, Dunkirk, N. Y., U. S. A.

### Practical Knots and Splices

(Continued from page 40)

to the corner and down one side to lower corner, then you will have the design to copy for the opposite side. Use any large flat knot for lower center, and fill in with any type wanted. A good way to copy the knots desired is to first make the knot with old phone wire, then follow around with the manila and unreeve the wire, then follow the manila around with other strands. Endeavor to keep six thread manila as clean as possible. After the face of the frame is filled in to your satisfaction and the knots uniform, use a fine nail set and set the brads in out of sight.

For the border of the frame use 3½ to 4 inch circumference clean manila. About 18 inches from one end place a temporary whipping and make a lanyard or manrope knot showing two or three parts. With the other end of manila place a whipping about 18 inches from the end and tuck the three strands through the strands of the other rope close up behind the knot. Pull all slack through and make a similar lanyard knot with these ends. Do the same for the other three corners of the frame, carefully measuring the rope so that it will fit. If too long or too short, same can be lengthened or shortened an inch by putting in or taking out a turn. After the eight knots (two for each corner) have been tied, nail the rope to the outside edge of the frame with three inch galvanized wire nails and sink out of sight. Unlay strands from knots, then unlay yarns and comb out. Whip and cut off even allowing about 2½ inches for tassel, then remove whipping. Galvanized and brass nails are used to prevent rust, staining the manila. Should frame become dusty later on, it can be cleaned with a vacuum cleaner, or if very dirty, remove the picture and use soap and water. The raw edges of canvas on the back can be covered with any material, preferably white if same is to be hung on delicate wall paper. You will now have a frame that your marine friends will pause to admire. Should your six thread manila run short, figure on making the splice to come under the lay of your next knot. A satisfactory splice can be made by whipping both ends close up to end and sew ends together with a sail needle and twine. The last article of the series will illustrate a decorated frame without border rope.

(To be continued.)

#### 1929 RACING DATES

April 20.....	Albany to New York—Outboards
May 29-30.....	Worcester, Massachusetts
May 30.....	Cincinnati, Ohio
June 15.....	Boston-New London Marathon—Outboards
June 22.....	New London, Conn., to Gibson Island, Md.
June 28-29.....	Philadelphia—Outboard
July 4, 5.....	Galveston Island Marathon, Texas
July 13.....	Block Island Race
July 19-20.....	Second Annual Regatta—Portland, Maine
July 26-28.....	Buffalo, New York
August 2-3.....	Newport, Rhode Island
August 16-17.....	Miles River, Maryland
August 24-25.....	Gold Cup Regatta—Red Bank, New Jersey
August 31-Sept. 2.....	Detroit, Michigan
September 8.....	New England Championships—Wollaston, Massachusetts
September 13-14.....	Washington, D. C.
September 20-21.....	Eastern Division Outboard Championship—Middletown, Conn.
October 4-5.....	Eastern Outboard National Championship—Boston
December 7-8.....	San Diego, California

#### 1929 MOTOR BOAT SHOWS

April 1-6.....	Stamford, Connecticut
April 6-13.....	Hartford, Connecticut
April 22.....	Grand Rapids, Michigan
April 20-27.....	Detroit, Michigan
April 27-May 4.....	San Francisco, California
April 27-May 4.....	Chicago, Illinois
May 6-11.....	Columbus, Ohio

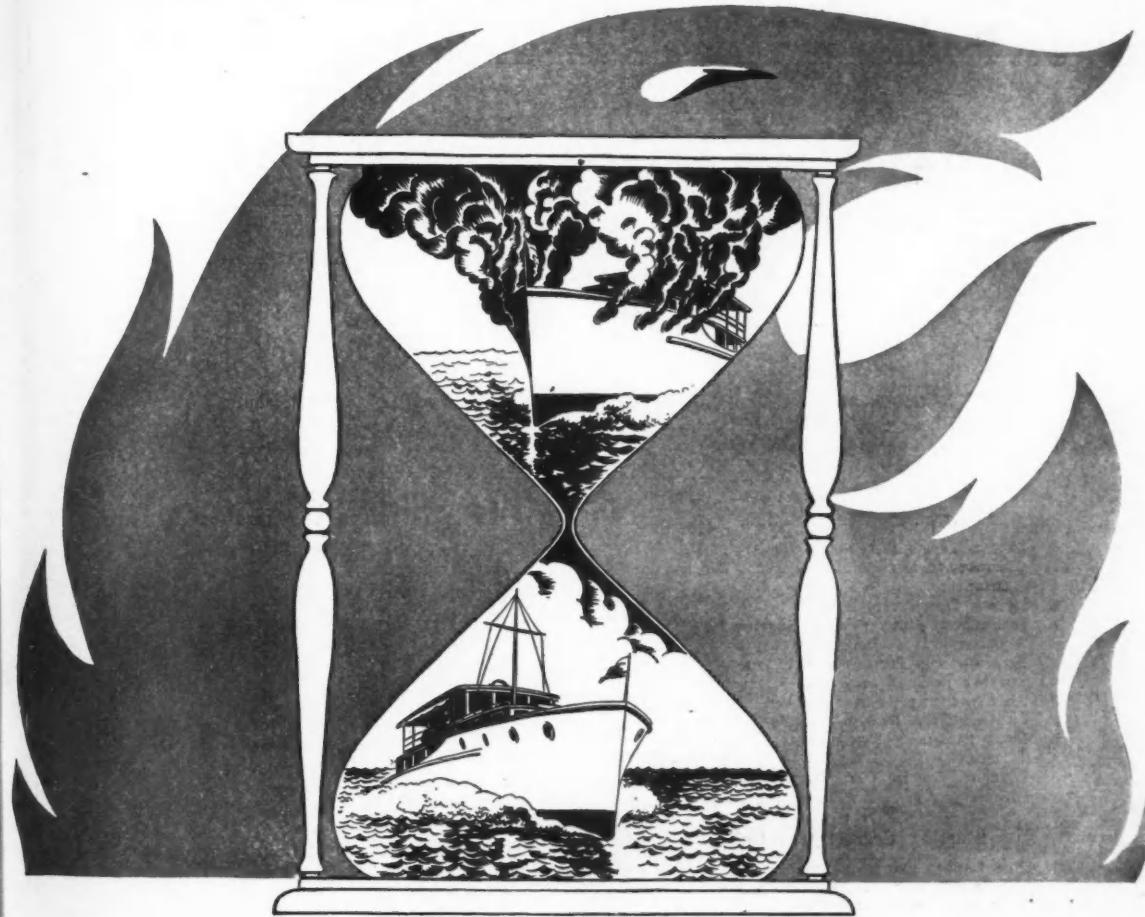
#### EARLY LAUNCHING AT MORRIS HEIGHTS

The latest issue of The Skipper, published by the Consolidated Shipbuilding Corporation tells of the launching of a new 76-footer at this company's Morris Heights yard.

On February 15, Vixen, owned by Mr. Adolf M. Dick, slipped down the ways—the first of the Consolidated fleet to be launched for the season of 1929. She is 76 feet long with a beam of 13'6" and is powered with two 300 h.p. Speedways, giving a speed of 23½ m.p.h.

APRIL, 1929

## KILL FIRE WHILE IT IS YOUNG



## The fire is out in seconds ...with ALFITE on the job

The ALFITE System floods the fire space with ALFITE Gas, snuffing out the fire as easily as you snuff out a candle. The fire—one minute a blazing inferno—is smothered out in a few seconds.

ALFITE Gas, stored in small steel cylinders, is released by

one pull on a control lever, located *outside* the fire zone. The ALFITE Yacht System distributes the gas to the danger points where fire may break out. The ALFITE System is simple. A single valve seals against leakage, and assures complete discharge.

Our booklet "One Fire Is Too Many" describes and illustrates the ALFITE System and its application. A copy will be sent on request to American-La France and Foamite Corporation, Engineers and Manufacturers, Dept. S5 Elmira, New York.

## AMERICAN-LA FRANCE AND FOAMITE PROTECTION

A Complete Engineering Service  
For Extinguishing Fires

Mention MOTOR BOATING, 57th St. at Eighth Ave., New York

# A New Book

## Motor Boat Building

VOLUME XI

MoToR BoatinG Ideal Series

By  
H. W. PATTERSON  
WILLIAM ATKIN  
and others

With Chapters on How to Design a Motor Boat, Reading the Different Plans, etc., and Twelve Complete V-Bottom Designs by William H. Hand, Jr.

### CONTENTS

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2. CONTINUING THE WORK OF LAYING DOWN THE LINES
3. LAYING DOWN THE KEEL
4. PREPARING MOULDS AND SETTING UP THE FRAME
5. BENDING AND FITTING THE FRAMES
6. PUTTING IN FORE AND AFT MEMBERS
7. APPLYING THE PLANKING
8. FINISHING THE PLANKING
9. DECK FRAMING, WATER-TIGHT BULKHEADS AND DECKS
10. INTERIOR JOINER WORK AND FINISHING

#### PART II.

##### Starting Correctly to Build

1. THE LAYING DOWN OF LINES AND THE PROPER INTERPRETATION OF THE PLANS
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5. STEAMING WOODS, FITTING THE FLOORS, FRAME FASTENINGS AND CUTTING THE LIMBERS
6. METHODS OF PLANKING AND CAULKING THE HULL
7. BEVELING THE FRAMES AND FITTING THE DECK BEAMS
8. VARIOUS KINDS OF ENGINE BEDS WHICH ARE SUITABLE FOR SMALL CRAFT
9. SHOWING TWO DIFFERENT WAYS FOR CONSTRUCTING THE SIDES OF A CABIN HOUSE WITH, IN ADDITION, A SIMPLE TYPE OF COMPANION SLIDE, COMPANION DOORS, AND A PRACTICAL DESIGN FOR A FLUSH HATCH
10. GENERAL HINTS

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12. DISPLACEMENT
13. WEIGHTS AND TRIM
14. DESIGNING TO A DISPLACEMENT
15. THE CURVE OF AREAS
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17. STABILITY

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9. TORNADO, a 45-FOOT AUXILIARY SCHOONER
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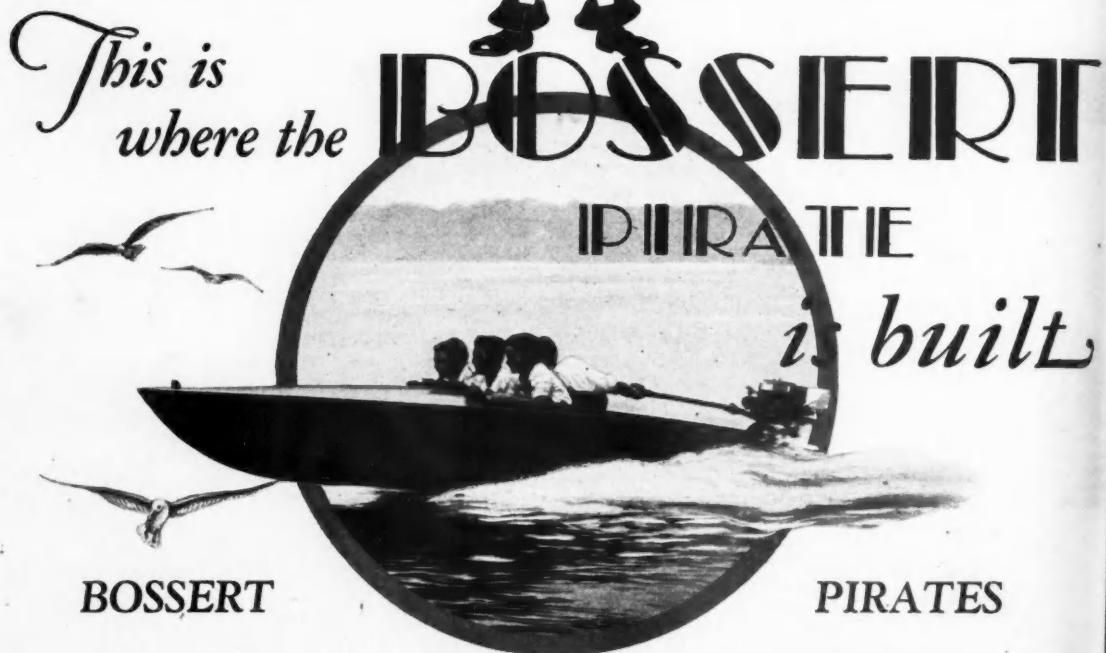
# Outboard MOTOR BOATING

REG. U.S.

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*The Magazine for Outboard Sportsmen*



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### The Greatest Value Ever Offered in Outboard Boats

**Bossert Pirate Jr.** A mahogany, bright finish, fast but safe, strongly constructed, family boat . . . . **\$330**

**Bossert Pirate Kid.** An extremely fast, new addition . . . . suited for the best races . . . . **\$265**

**Bossert Pirate Kid K. D.** This is the regular Bossert Pirate Kid knocked down with a full manual of instruction so that anyone with the average knowledge of tools can complete it. **You Save two-thirds the finished price and have a lot of fun besides . . . . \$98**

**DEALERS!** Bossert Pirates afford a real money-making opportunity to you . . . . Better boats for less money, big successful organization in back of them, broad national advertising!

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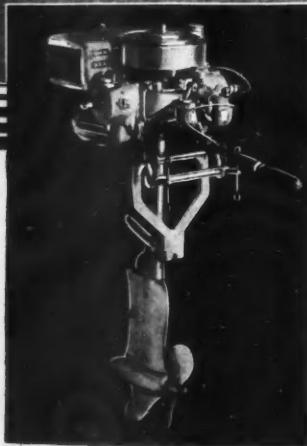
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# Commanders of the Waterways



JUNIOR 5-speed Twin    MASTER 5-speed Twin    COMMODORE Class "B"    CHAMPION Class "B" Racer    ADMIRAL Class "C"    MONARCH Class "C" Racer



*Built to advanced standards*  
**CAILLE MOTORS**  
*have reached new heights in*  
*Performance, Power and Dependability*

### Champion Racer

Model 34. Faster and better than the model that won at Lake Elsinore, Cal., establishing the fastest time in B Class, and that also won the Mid East, Mid West regattas and the grueling Savannah marathon Class B events in 1928.

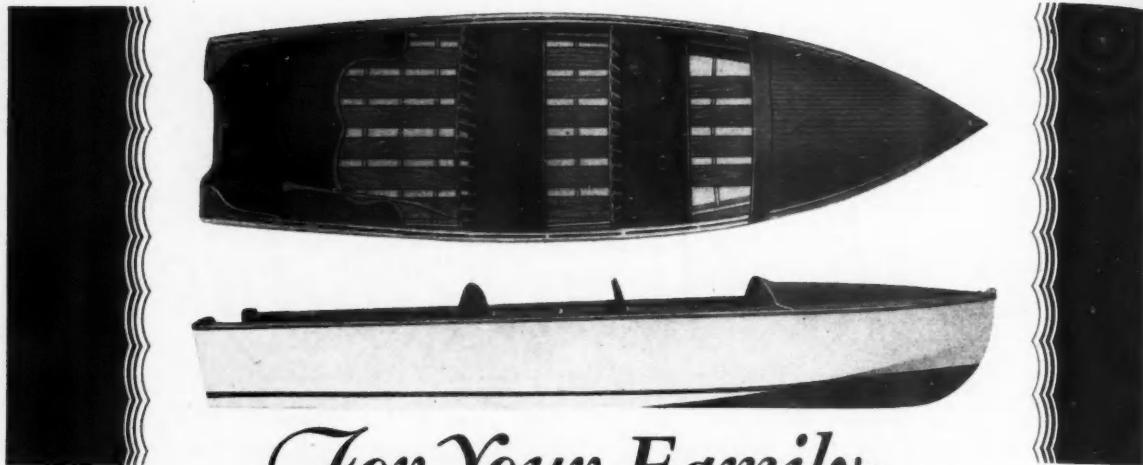
*A Guarantee Bond goes with Every Caille Motor*

For whatever purpose you wish an outboard motor you can always depend upon Caille. Fifteen years of knowing how — a sincere desire to build the best and the resources and facilities to produce the best have borne fruit. The Caille Line for '29 offers you more than the exact motor to fit your need and purse. It offers you in addition a forward step in engineering design and a value new and outstanding to the industry.

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*For Your Family—*  
**THE NEW MERCURY**



BOYD-MARTIN speed boats have won more than their share of records for the various motor classifications and various distances. But the outstanding achievement, about which there can be no confusion, is the undisputed fact that

For Three Consecutive Years the Fastest Time Made by Any Outboard • Any Class • Any Distance Was Made with Boyd-Martin Boats.



THE original design of the 1929 Mercury introduces a new trend in V-type boats. Beautiful lines give it an individual gracefulness — yet safety under any conditions is the keynote of its success. For it is truly a family boat — for every member of the family to use and enjoy. Sixteen feet long, it is built of genuine African mahogany and has a 59-inch fore deck. Power recommended: Class B, C and D motors. Capable of speed up to 30 miles per hour.

There are other Boyd-Martin family boats — and many runabouts and speed boats from which to select the boat you want. Each has its distinct advantages. *Write for your copy of the new 1929 Boyd-Martin Catalog.* All the Boyd-Martins are fully illustrated and described in detail. Write today.



The sensational BULLET, the World's Speed Champion of all outboards, is a member of the Boyd-Martin family, of course. It holds the record of 41.748 M. P. H., the fastest time ever made. Winning racers demand the BULLET—and the younger men, who want the fastest, inevitably choose the champion. See it in the catalog.



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**BOYD-MARTIN Boats**

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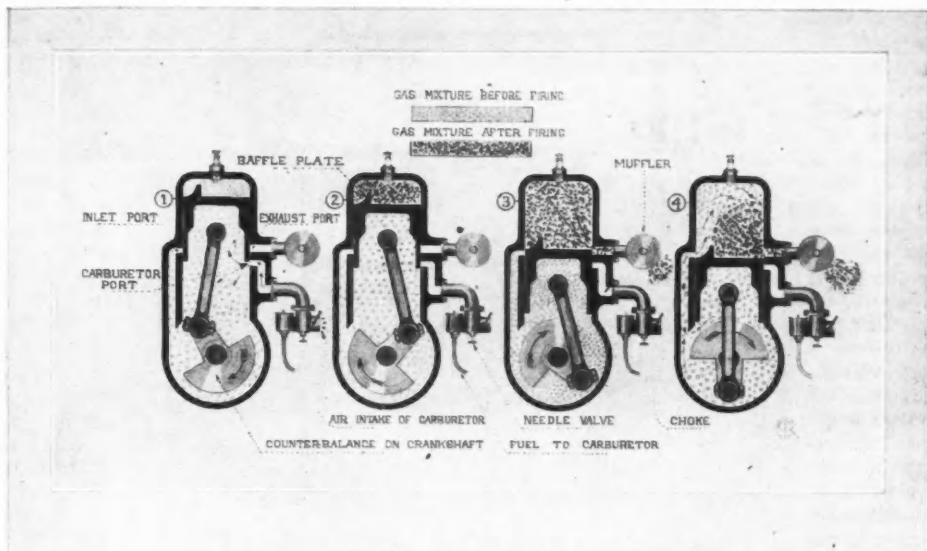


Fig. 1 The successive stages in the operation of a two-cycle gasoline engine

## WHY IS THE TWO CYCLE OUTBOARD MOTOR?

By DICK COLE

**W**HY is the two cycle outboard motor? Sounds like the foolish questions: "How long is a piece of string . . . . If so, why and how many? But, putting jokes aside, and getting right down to brass tacks, the salient question is: why is the two cycle type internal combustion motor universally used for outboard motor service?

This question constantly crops up and among any group of outboard motor fans, many and varied are the answers. "It is cheaper to manufacture," says one; "it is less complicated and practically fool-proof," says another; "more power can be crowded into a limited space," says still another. Each is a logical answer, and more or less correct, but no single reason is the controlling factor which decides the issue. Instead, it is a group of conditions, requirements, and mechanical limitations which has placed the two cycle type motor paramount in the outboard motor field.

Two cycle motor! Strangely, many will read the

foregoing paragraphs and wonder what it is all about. Two cycle motor? Well, what of it? It seems incredulous to any old-time motorboater that anyone should not know the working principle of a two cycle motor. Yet the younger generation, speaking generally, is as ignorant of the technique of the two cycle motor as a fox-trotting flapper is of the graceful steps of the minuet. Even the manufacturers of outboard motors do not afford much enlightenment, seemingly taking it for granted that the general public is familiar with two cycle operation. This is a fallacy.

Business men, school boys, even house-wives, discuss, with a fair degree of accuracy, the four cycle automobile motor of today. They understand the meaning of: "eight in line . . . connecting rod bearings . . . overhead valves . . . carbon knobs"; but talk to them about two, three or four port two cycle motors and they will stare at you as if you asked them for the cube root of the fourth dimension. So, if the reader,

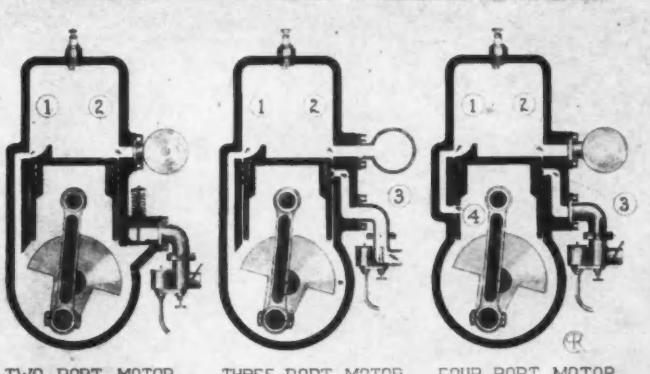


Fig. 2 Similar diagrams showing the differences in the two, three and four port engines

not familiar with the mysteries of two cycle operation, will abide with me a little while, I shall clear up the mystery in due time.

The two cycle motor is not new. It is really the fore-runner of the four cycle motor—the automobile motor of today. One does not have to wear waist-line whiskers and secretly read all the gland ads in the magazines to remember when the two cycle motor predominated in the motorboating field. Motorboaters boasted of the prowess of their "Leightons—Barbers—or Fairbanks."

It is to laugh to recall some of the early two cycle marine motors—engines, they were mostly called. One cylinder; or two, three or four cylinders in a row; each fitted with a big, glass, steam-engine type lubricator. A little knob on the top was turned UP to run, DOWN when the engine was stopped. Often the operator would forget to turn the knob down. Then all the oil in the lubricator—and it was plenty—would seep into the crank-case. The next time the engine was started . . . Zowie! Clouds of blue-grey smoke; spitting . . . sputtering . . . stop! Spark-plugs fouled! Clean 'em; start again! A cough; more smoke; a gasp . . . stop! And thus the performance was repeated until the surplus oil had been worked out.

Each cylinder was fitted with a big, bulky priming cup, and a squirt can was always at hand. Priming the motor was the preliminary step in starting. After the motor was running, the priming cups, acting as pressure release cocks, would be opened at frequent intervals to learn if the respective cylinders were firing. Their spat—spat—spat—spat could be heard a mile away.

A composite intake manifold, as used on the present day automobile motor, was not in general use on the two cycle, multi-cylinder motor. Instead, each cylinder had an individual carbureting device called a mixer valve. However, this method gave better results than would a single carburetor sup-

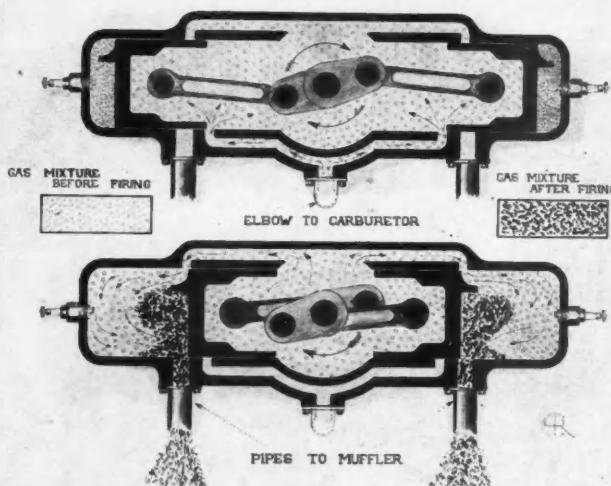


Fig. 3 The application of two-cycle operation to a two cylinder opposed engine of the twin outboard type

plying a common mixture to all cylinders. This was not due to any inherent characteristic of the two cycle motor, but entirely due to the inaccurate, haphazard machine shop practices of the time.

The writer knows something of the production methods of the manufacturers of one of the most popular two cycle marine motors of its time. The cylinders were machined on ancient lathes and the operator used an old piston for a gauge. Inside

mikes, to say nothing of modern dial indicators, were as conspicuous as feathers on a mule. Cylinders internally ground? I should say not! Under a microscope the lathe tool marks would stand out like the ridges on a washboard. Piston rings were cut from oversize stock, diagonally slotted or step-cut, and then the ends rough-filed until the ring would enter the cylinder. And bearings! Wow! The production engineer of a modern, motor-building plant would have a combined attack of rarebit nightmare, epileptic fit, and the rabies, to see a mechanic wield an old-time bearing scraper. Bearing scraping will soon be one of the lost arts. Infinitesimally accurate ball or roller bearings have almost entirely replaced the old-time babbitt bearings; or, where babbitt is still used, it is only the thin lining of a solid brass shell, and is machine-reamed ten times more accurately than by the hand scraping method.

Such were the methods in the early engine building days. Engines were assembled tight. Tight was right! A heavy crowbar was needed to budge the flywheel. The engine was placed on a running stand and belted to a power shaft and turned over for hours—or days—until the engine loosened up. In other words, until the wash-board ridges were scoured down and the high spots on the bearings burnt in. The finished motor of the era when the two cycle motor was in its heyday, if inspected, part by part, in the inspection department of a modern motor building works, would be

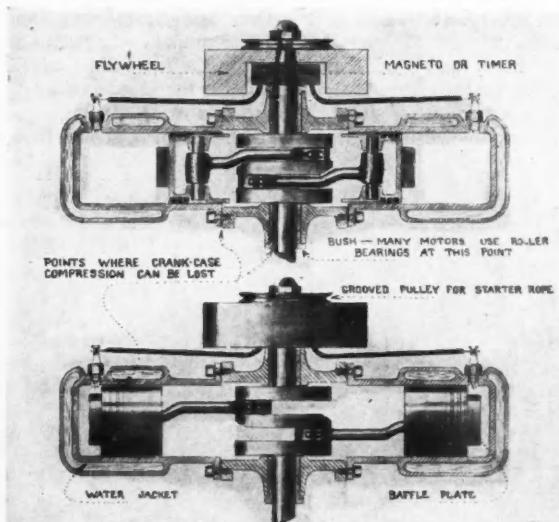


Fig. 4 Section of a typical twin outboard engine showing how compactly it can be built

cast irretrievably into the junk pile. Indeed, a so-called worn out and junked automobile motor of today would conform closer to inspection limitations than would the new two cycle motor of twenty years ago.

Notwithstanding the fact that the two cycle motor seemingly is much more simple in construction and design than the four cycle type, they have several points in common

where far greater accuracy is demanded in the two cycle motor, namely absolutely gas-tight piston rings and main shaft bearings. Whereas these factors are desirable in the four cycle motor, they are vital to the two cycle. Old style manufacturing methods were not capable of consistently maintaining those conditions and the two cycle motor fell into disrepute.

It is little wonder, then, that the advent of the four cycle motor with its unit carburetor, splash oiling system, flexibility of control and greater fuel economy, was looked upon with favor by motor-boat enthusiasts. And so the two cycle motor went into decline and development of the gasoline motor proceeded with the four cycle type. I feel safe in making the statement, that, had the same engineering practices been employed; had the same perseverance been brought to bear; had the same exacting accuracy been applied to the development of the two cycle motor as to the four cycle, the two cycle motor would be in far greater use today in many fields. It is capable of rendering dependable service wherever a constant speed power-plant is required, as for marine use, pumping, ventilating and electric light plants. Because of certain inherent characteristics, to be explained later, the two cycle motor is not suitable for automobile use, or in any other service where a variable speed, variable torque motor is required.

And so the two cycle motor almost met an untimely end in its infancy. It was almost entirely forsaken. Only in the outboard motor field was the tiny spark fanned and nourished. Its ailments were studied and remedies were propounded. By careful nursing, and infinite patience and perseverance, the weakling infant has grown into the husky youth of today—the modern outboard motor. So husky, in fact, and so well established in the esteem of thousands, that his four cycle brother faces a super-task to oust him from his hard earned position. The present-day outboard motor loudly proclaims the early fallacy that the two cycle type motor could not be developed into a dependable, powerful, economical power plant.

To understand why the two cycle motor is so firmly seated in the outboard motor field, one must have a little knowledge of the two cycle principle of operation. As stated before, nearly everyone has at

least a meager understanding of the working of the four cycle automobile motor.

I must assume that the reader knows what a piston is and its relation to the cylinder, connecting rods and crank shaft. Also that the reader has an elementary knowledge of the entrance of the gasoline and air mixture, the compressing and firing of this mixture, and the expelling of the exhaust gases. In other words,

he can visualize the four strokes—or cycles—of the ordinary automobile motor.

One must know that on the downward stroke of the piston of a four cycle engine, a mixture of gasoline vapor and air from the carburetor is drawn into the cylinder through the inlet valve. Intake stroke. At the bottom of the stroke the valve closes and the piston travels upward compressing the mixture. Compression stroke. Just beyond the uppermost point of the stroke, the spark

takes place. The mixture is burned—exploded—and the expanded gases force the piston down. Power stroke. At the bottom of the stroke the exhaust valve opens permitting part of the expanded gases to escape. The valve remains open while the piston travels upward displacing the balance of the burnt gases. Exhaust stroke. Thus the series of strokes is repeated in orderly sequence: intake . . . compression . . . power . . . exhaust . . . intake . . . compression . . . Every fourth stroke is a power stroke. Therefore each cylinder fires once every second complete revolution.

Since the strokes of the piston and the cycles of operation approximately coincide in the four-cycle motor, one might be led to believe that the terms are synonymous. The name two-cycle, applied to the so-called two-cycle motor is really a misnomer. Literally it should be two stroke motor. The cycle of operation, compression . . . power . . . exhaust . . . intake . . . occur in the same sequence as in the four-cycle motor but they are brought about by a different mechanical means. In addition, two other operations—or cycles—take place in the crank-case of the two-cycle motor, so, literally, it is a six cycle motor. However, to avoid confusion, I shall continue to call it by its misnomer, two-cycle.

Now let us visualize the operation of the two cycle motor. See Figure I. Here is represented a single cylinder motor in its simplest form. The cylinder and crank-case are gas-tight and the piston compresses gases both above and below. The only egress and exit for gases are through openings in the cylinder wall, called ports. These are uncovered by the piston in its travel. The piston acts as a slide valve somewhat similarly to the steam engine valve or the sliding sleeves of the Knight type motor. (Cont. on page 222)

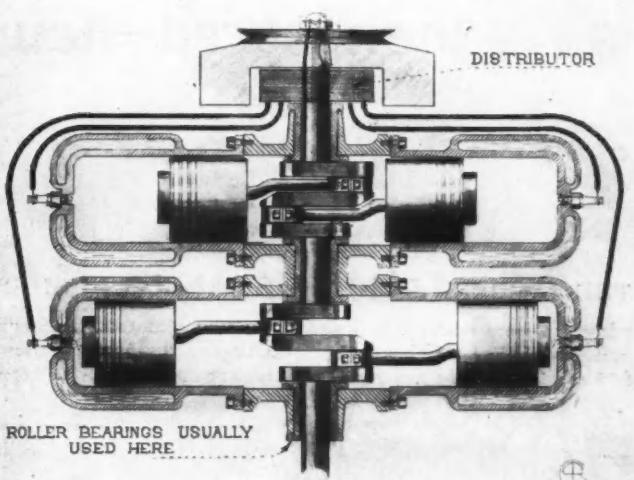


Fig. 5. Doubling up two twin engines produces the more powerful quad of the present day

# the 1929

## new speed—new strength



### THE FAMOUS SAFETY-PLANE HIGH SPEED RUNABOUT

Combining hydroplane speed with unusual seaworthiness and control, the SAFETY-PLANE is just right for general personal use. Full upholstery, mahogany decks, four-passenger capacity, and a speed range of 30 to 45 miles are yours in this heavily constructed 13½-ft. stepper.



*It takes REAL SPEED to run as cleanly as this!*



*"I drive a WILDCAT because it is strong, fast and seaworthy," says Bill Higgins, winner of free-for-all at Detroit regatta.*

### THE MODEL R

A class B racer of national reputation. The new motors are pushing this husky little 10-footer to southern victories, and forty miles is the goal set. It takes both speed and control to win nowadays, and the MODEL R has *both* in a matchless degree.

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Here is the 11½-ft. big-motor racer which has *everything* required for consistent winning. Heavier structure, faster lines, easier riding—the 1929 WILDCAT speaks the last word in race-boat design. And in addition, it is arranged to seat three persons comfortably!

### Hooton Boats Won 200 Races



# HOOTONS

strength—new beauty—new comfort



## THE NEW VEE-PLANE A 15-FT. FAMILY SEABOAT

The VEE-PLANE is a new creation of sensational abilities. Extreme seaworthiness in big water; easiest riding ever had at high speed; dryness, comfort, and safety—all these, and more, mark the VEE-PLANE as the outstanding development of the new season.

Like all HOOTON boats, the VEE-PLANE has the buoyant square bow—dry, safe, and free from steering hazards. Deep vee sections, both fore and aft, ease the hull through the waves with a new softness. It has the sturdy HOOTON structure, accurate workmanship, and beautiful mahogany finish, with upholstered seats for five. The speed range is 20 to 36 miles, depending on power.

Here is your ultra-safe runabout—and your extra-stout wave jumper. There is real "kick" in pushing a VEE-PLANE over the blue!

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Races won American Records in 1928!

MORDON B. HOOTON

Grandville Ave.  
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SEAGOIN' (and it is NOT a "faked" picture).



Primarily a family boat—safe, above all.





## MAKE YOUR REGATTA INTERESTING

*Suggestions for Clever Stunts and Events to Provide Thrills and Entertainments  
for Your Regatta Contestants and Spectators*

APRIL, 1929

# RACING SPEED



(76)

Most Lockwood  
Dealers are now  
in position to ex-  
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## Two Other Great Motors

### The "Ace"

Holder of all 1928 Class A  
Official Records. Weighs only  
50 lbs. Develops about 7 H. P.  
The ideal Light Motor.

### The "Racing Chief"

A Class B Motor that will, we predict,  
crowd the coveted 40-mile mark. A  
real racing job. With dual carburetion  
and fresh oil lubrication.

All Have the Famous "Lockwood Pilot" — the "unseen hand  
that takes hold of the Motor when you let go" to light your pipe, arrange your tackle or rest your arm. Worth  
\$50 of any man's money. An exclusive Lockwood feature. Write for Free Catalog Folder.

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## -Without Noisy Exhaust

The Lockwood Chief for 1929 embodies a most remarkable new feature — "Water-Sealed Exhaust." Everywhere it is being welcomed as the most distinct advance the industry has recently known. Instead of being noisily discharged into the air, the exhaust gases are carried down to the top of the gear housing and completely discharged under water through the hollow Water-Guide.

Never before has a powerful Outboard Motor been so quiet in operation and the astonishing fact about this New Lockwood improvement is — *there is no loss of power*.

If you want a Motor that won't disturb the neighbors, nor annoy your fellow fishermen — one that will immeasurably increase your own enjoyment of outboard motoring, choose the New—

## LOCKWOOD "SILENT CHIEF"

Here is a Class B Motor with a remarkable record for speed and power. Ten times out of twelve, in 1928, the highest racing records for its class were won decisively. Time and again it has matched its prowess against much larger motors and covered itself with glory.

Now for 1929 without sacrificing one whit of its power and speed, we bring you the most wanted improvement in Outboard Motors — "Water-Sealed Exhaust."

Other features include Extended Automatic Oiling, Protected Gasoline Gauge, Improved Carburetor and new convenient control.

**Silenced  
Exhaust**  
*without ANY Loss  
of Power*



Lockwood Motor Co., 915. Jackson St., Jackson, Mich.  
Gentlemen: Send me Free Catalog folder for 1929.  
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# OUTBOARD MOTORS CORPORATION

THE Elto Outboard Motor Company, the Evinrude Motor Company, the Lockwood Motor Company, are now merged into a single enterprise, the Outboard Motors Corporation.

Ole Evinrude, builder of the first successful outboard, founder of the Evinrude Motor Company and the Elto Outboard Motor Company, becomes President and active head of the Outboard Motors Corporation.

The Lockwood, Elto and Evinrude Companies each will maintain its personnel and identity as a manufacturing and merchandising Division of the Outboard Motors Corporation.

The products of the three Divisions will continue to be made and sold under the names they have always carried. Each Division will have its own dealer organization as formerly. Active, healthy competition

will be continued. *But the Corporation's entire resources of engineering and administrative strength and broadened manufacturing facilities will be unreservedly devoted toward increasing the quality and performance and value of each single product of each Division.*

The savings and economies of immense production will be given to buyers in motor values not heretofore possible.

The efforts of three outstandingly successful engineering staffs, now merged and pointed toward mutual objectives, promise new expansions of outboard motor usefulness that will surpass and overshadow even the notable developments of recent years.

The Outboard Motors Corporation automatically steps into a conspicuous leadership. In every racing class its products are officially

OUTBOARD MOTORS CORPORATION  
OLE EVINRUDE, President  
Milwaukee, Wisconsin, U. S. A.

APRIL, 1929

# EVINRUDE ELTO LOCKWOOD

the champions. The Lockwood "Ace" and the Lockwood "Chief" were the 1928 champions in classes A and B. The Evinrude "Speeditwin" has long held top place in class C. The Elto Quad holds not only the championship in classes D and E, but also America's fastest time-trial and competition records.

This racing supremacy, important though it is in the realm of sport, expresses its true value in terms of plain utility.

From these critical tests of materials, innovations and new engineering principles, has flowed steady inspiration for the building of service motors that are correspondingly superior in every phase of satisfactory day-in and day-out performance. Every motor in the broad range of models offered by Divisions of the Outboard Motors Corporation bears ample testimony to this fact.

## Products of The Outboard Motors Corporation

### Super Elto Motors

THE HI-SPEED QUAD	THE HI-SPEED SPEEDSTER
THE SERVICE QUAD	THE SERVICE SPEEDSTER
THE FOLDING LIGHTWEIGHT	

### Evinrude Motors

THE SPEEDITWIN	THE SPORTWIN
THE FASTWIN	
THE FLEETWIN	THE INBOARD TWIN
EVINRUDE PUMPING UNITS	

### Lockwood Motors

THE ACE	THE SILENT CHIEF
THE RACING CHIEF	

ELTO DIVISION, Milwaukee

EVINRUDE DIVISION, Milwaukee

LOCKWOOD DIVISION, Jackson, Mich.

# OUTBOARD MOTOR COMPANIES CONSOLIDATE

*Elto, Evinrude and Lockwood Companies Behind the New Outboard Motors Corporation Formed to Effect Economies in Design and Production*

THE Outboard Motors Corporation is a new company formed by the consolidation of three of the strongest companies in history, the Elto Outboard Motor Company, the Evinrude Motor Company, and the Lockwood Motor Company. At the head of this vast industrial combine is Ole Evinrude who has been elected President of the merged companies with Arthur L. Lockwood, formerly President of the Lockwood Company now serving as Treasurer. Charles L. Coughlin, Vice President and General Manager of the Briggs and Stratton Corporation and Jacob Stern, Assistant General Manager of the Elto Company have become Vice Presidents, while John L. Brown will serve as Secretary. These gentlemen together with Sheldon R. Noble of Detroit will form the Board of Directors of the new company.

This consolidation brings to the new corporation tremendous resources for the production of outboard engines. All three of the companies involved have had long and practical experience in the building of outboard engines and Evinrude, which was organized in 1910 by Ole Evinrude, is generally considered to be the pioneer builder in this field. The Lockwood Motor Company has been producing successful outboard engines for over 15 years and the Elto Company is also a thoroughly grounded and well equipped corporation. The plant of the Evinrude Company comprises seven acres with railroad sidings and a large modern plant at Milwaukee. The Lockwood similarly owns four acres of land and its plant, which is modern and well equipped, was greatly enlarged during the recent months to increase the capacity for its engines.

It is the plan of the corporation to function more or less after the fashion of the General Motors Corporation, with each of the companies involved continuing to manufacture and sell its own particular brand of machine. They will compete with one another in the same manner as heretofore and the dealer organization which now places so many of these little engines will remain intact.

The combined production of the three parent companies in 1928 was just under 26,000 units and it is estimated that there will be produced during 1929 some 75,000 odd engines. Of these the new corporation hopes to build at least 40,000 units this year.



*Ole Evinrude, pioneer inventor of Outboard engines and now President of the newly formed Outboard Motors Corporation*

It is only within the last two or three years that the outboard motor manufacturers have so developed their products as to provide motors of such capacity, quality and refinements that a large new field has been opened, including the use of outboard motors for runabouts, small cruisers, as well as racing boats. Elto Quads have developed a speed of over 41 miles per hour. Lockwood Class B Motors have shown over 35 miles per hour and the Evinrude Class C has won races at over 38 miles an hour. Elto is putting a new motor on the market for 1929 which has a folding arrangement so that its outside dimensions are approximately 22 inches in height by 12 inches square when folded and its weight is only a little over 37 pounds. This motor is unique on account of the small space it occupies.

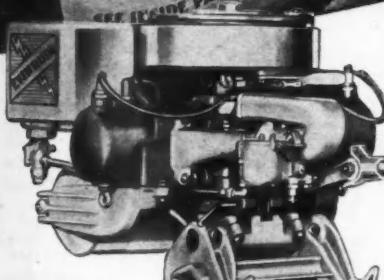
This combine places Mr. Evinrude at the head of the two companies which he founded at different times and one of his former competitors in this field. The three plants will continue to be operated separately, retaining the present engine models and dealer organizations.

The physical properties of the several companies involve large areas of land, buildings and equipment. The Evinrude Company owns seven acres of land which are equipped with railroad sidings at their large modern plant in Milwaukee. This has been entirely remodeled and rearranged during the last few months. The Elto Company, which is also located in Milwaukee, occupies rented quarters of ample capacity. The Lockwood Company has its plant at Jackson, Michigan, and this comprises four acres of land also with railroad connections. This plant is also very modern and well equipped and has been enlarged during recent months to provide greatly increased capacity. A recent new development for these little engines is the pumping units devised by the Evinrude Company which are very useful for fire control in suburbs and rural communities.

Mrs. Evinrude, Secretary-Treasurer of the Elto Company who has been associated with Mr. Evinrude for many years in the upbuilding and management of his companies ever since he started to build his first outboard engines will not be active in the new concern but will take a long earned rest which Mr. Evinrude says she should have taken years ago.



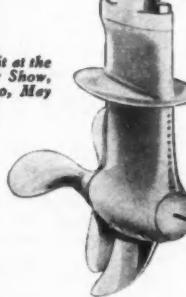
WORLD'S FASTEST TWIN—Blue Streak II, Speeditwin powered, that set the record of 38.59 miles per hour in the 10 mile Free-for-All at San Diego, Calif., last December.



Four Evinrude  
"Twins"

Besides 20 H.P. Speeditwin, illustrated, choose from these: Fastwin, 14 H.P., 3 to 35 M.P.H., Fleetwin, 6 H.P., 4 to 25 M.P.H., Sportwin, 2½ H.P., 3 to 13 M.P.H. A size, a speed, a price for every boat and buyer.

See our big exhibit at the  
National Outdoor Show,  
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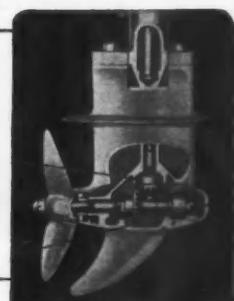


#### Ball and Roller Bearings

From piston to propeller, the power of Speeditwin and Fastwin moves through quiet, smooth-rolling ball and roller bearings. At left, crankshaft with bearings; below, lynite piston and connecting rod bearing construction.



Drive and propeller  
shaft bearing  
construction.



## Why Is the Two Cycle Outboard Motor

(Continued from page 213)

Let us assume that our demonstration motor is running and we shall break in upon the cycles of operation at the point shown in the first diagram. The crankshaft is revolving clock-wise, so the piston is almost at the top of the stroke. In its upward travel it has created a partial vacuum in the crank-case. At the point shown in the illustration, the bottom of the piston uncovers a port, which we shall call carburetor port, and the vacuum in the crank-case is displaced with a fuel mixture from the carburetor; in simpler words, a fresh charge is sucked into the crank-case.

While the piston has been traveling upward, it also has been compressing a charge of fresh gas injected into the cylinder during a previous operation. The operation illustrated constitutes the compression cycle and coincides with the similar operations in the four-cycle motor.

At the point shown in the second diagram, the piston has passed over top center. The spark has taken place firing the compressed charge and the piston is being driven downward on the power stroke. Note that the carburetor port is now covered and the fresh charge drawn into the crank-case is being compressed. This diagram represents the power cycle, and it, too, coincides with the power cycle of the four-cycle motor.

At the point shown in the third diagram, the piston has almost reached the bottom of the stroke. The top rim of the piston uncovers the exhaust port and the greater part of the hot, compressed gases escape into the muffler. However, the cylinder still is completely filled with burnt gas at atmospheric pressure. Fortunately, due to a constant physics law, when a compressed gas suddenly expands, the temperature of the gas is reduced. The application of this law makes artificial refrigeration possible. In the case of the two-cycle motor, the sudden expansion of the hot gases under pressure, as illustrated at the point in the third diagram, reduces the temperature of the balance of the burnt gas in the cylinder below a point where it is capable of igniting the fresh charge to be injected. This diagram represents part of the exhaust cycle.

At the point shown in the last sketch, the piston is at the bottom of the stroke. The inlet port, diametrically opposite the exhaust port, has been uncovered. The fresh charge of gas, already compressed in the crank-case, is injected into the cylinder. This gas strikes against a raised plate on the top of the piston, called a baffle plate, which so directs the incoming gas that it pushes out the balance of the exhaust gas. This operation completes the exhaust cycle and also constitutes the intake cycle. The piston now starts upward covering all ports, and resumes the position as in the beginning.

The reader will observe that all the cycles of operation, compression . . . power . . . exhaust . . . intake . . . occur in the same sequence as in the four cycle motor. And, in addition, two other operations—inlet and compression—take place in the crank-case. So why not call it a six cycle motor?

While the illustrations in Figure I are typical of two-cycle operation, there are deviations from the design illustrated. The motor represented is a three port motor, and probably is the most prevalent type used today.

Figure II shows other types. The two port motor eliminates the carburetor port and substitutes an automatic check-valve between the carburetor and the crank-case. It has been claimed that this type develops more power at high speed because a larger volume of gas is drawn into the crank-case. The gas is being drawn in during the entire upward travel of the piston, instead of momentarily being sucked in during the brief opening of the port.

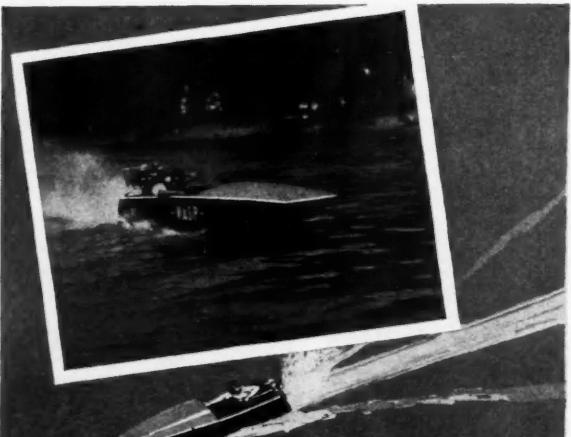
The three port motor has already been discussed. The four port motor is identical to the three port, except that an additional port is installed between the crank-case and the cylinder. It is claimed that this acts as a double seal between these points.

The writer will not enter into a discussion of the merits of the different types. There are other mechanical features of the two-cycle motor far more important than the arrangement of the ports.

I have used the single cylinder motor to illustrate the principle of two cycle operation, but in actual practice in the outboard motor field, the two cylinder opposed type—the twin—is in more general use. The twin design adds no complications. Visualize two single cylinder motors cut horizontally through the center line of their crank-cases, and then joined together base to base, and you have a twin. All the cycles of operation occur simultaneously in each half of the motor: the pistons compress together; the cylinders fire together; the respective ports are uncovered together. See Figure III.

The evolution and development of the twin cylinder opposed type motor—and multiples of the twin, as the quad—is one of the contributing factors to the popularity of the two-cycle motor for outboard motor use. In the twin type motor the two-cycle

(Continued on page 221)



# ACME Outboards

## ACME RACING WASP ACME RUNABOUT

**THE WASP.** Fastest boat built for use with high speed motors and a prize winner, as the records to her credit prove. An exceptionally husky craft that handles easily on either rough water or smooth, and consistently outdistances her rivals. If you would win races this year, drive an ACME WASP.

**THE RUNABOUT.** The ideal combination of speed, roominess, comfort and cruising qualities. Here is the boat that everybody can enjoy, you, your family, your friends.

There are no finer boats in the entire Outboard field than this year's ACME, reflecting, as they do, nearly forty years practical boat building experience.

Descriptive literature and specifications of the entire ACME 1929 line, including the 18 ft. Acme Cabin Cruiser, upon request.

### The Acme Boat Co.,

412 Oak Street

Miamisburg, Ohio



Below is a photograph of the Chase-Emerson Runabout . . . designed by C. A. Nedwidck . . . and acknowledged by boating men to be the trimmest, smartest and most seaworthy of all outboard craft.



# CHASE-EMERSON Most Beautiful of All Outboard Boats

Smart . . . Safe . . . Swift . . . Seaworthy . . . Soundly Built . . .

Chase-Emerson Boats were built to meet the wants and needs of the day . . . combining swiftness with safety . . . smartness with good boat-building . . . seaworthiness with comfort and luxury.

Right from the start you admire the beautiful flare—the clean, trim lines—the wonderful finish that characterize both Runabout and Knockabout Boats. And the more you go into

detail the more convinced you become that these boats not only look fine, but are actually just as fine as they look. Every detail of construction, every bit of material is the finest that can possibly go into a boat. To say that these are undoubtedly leaders of all the outboard motor boats is only to tell the truth . . . nothing like them have ever been built before.

*A Few Dealer Franchises Are Still Available  
Write or Wire for Information*

Built  
strongly . . .  
to carry the  
new motors

Chase-Emerson anticipated the newer, stronger motors . . . and built boats to fit them. Runabout models have specially constructed "well" into which any of the new motors fits easily . . . and at the side of this well is a miniature workroom and tool-space.

## New Price List Ready!

effective March 1, 1929  
Send for Catalog

### CHASE-EMERSON RUNABOUT

in 2 tones of Mahogany Finish or  
choice of 4 Beautiful color combi-  
nations.

### KNOCKABOUT

in Mahogany Finish.

## GENERAL SPECIFICATIONS

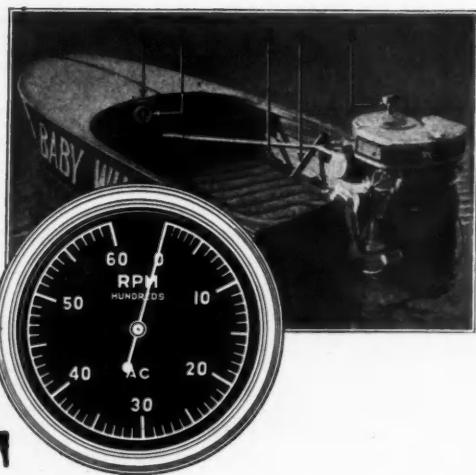
Sixteen feet over all. Extreme beam, 4 ft., 6½ in. Depth, 25 in. (to top of coaming, 32 in.). Draft, 5½ in.

20 to 30 miles an hour  
(depending on motor  
used.) Hollow  
V type bottom  
hull.

**A. B. CHASE-EMERSON CORP.**  
11 West 42nd Street, New York

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Chase-Emerson Boats will be on display at the following shows: Stamford, Conn., April 1-10; Sportsman's Show, Cleveland, March 30- April 6; Grand Rapids Boat Show, April 15-20; Detroit Boat Show, April 20-27; Chicago Outdoor Show, May 6-11.



## To get most out of your outboard engine, use this AC Tachometer

THE man who wants speed from an outboard engine wants this AC Tachometer.

It tells in R. P. M.'s, 0 to 6000 range, just what the engine is doing. It registers the gain or loss effected by adjustments of fuel mixture and spark position. It reveals at a glance defects in carburetion or ignition, gives instant warning of engine "trouble sources."

Because it records instantly the slightest decline in engine efficiency, it enables you to get the most out of your outboard engine.

An outstanding feature of the AC Tachometer is its *drive adapter*, which permits it to be attached to or detached from the flywheel drive while the engine is running.

Now available for Caille, Elto, Evinrude, Johnson and Lockwood outboard motors.

The AC Tachometer comes packed in individual cartons complete with all attachments which include, in addition to adapter, special mounting bracket and adjustable clamp, eight feet of flexible shaft, sufficient clips and screws for complete installation.

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AC Spark Plug Types G-2½ Metric and A-2½" Regular are especially designed for getting maximum results from all standard makes of outboard racing engines.

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AC THERMO GAUGES  
AC OIL PRESSURE GAUGES

AC TACHOMETERS  
AC AMMETERS  
AC OIL FILTERS  
AC AIR PRESSURE GAUGES

## Why Is the Two Cycle Outboard Motor

(Continued from page 222)

principle functions at its best. The design affords inherent mechanical balance of all moving parts. The explosions are synchronized and opposed; vibration is lessened. One of the outstanding features is, that the power is more than doubled without greatly increasing the bulk of the motor.

"More than doubled," I said. Correct! For two pistons expanding and compressing gas in a common crank-case create a higher degree of vacuum and a greater degree of compression than can be attained in the single cylinder motor. This means that the mixture from the carburetor is drawn more quickly and thoroughly into the crank-case on its suction stroke; is then more highly compressed and forcibly injected into the cylinder proper. This quicker handling of the gas results in a higher speed motor. Revolutions per minute is an essential factor when computing actual, delivered horse-power of a gasoline motor.

If the reader will spend a few moments reviewing Figures I and III, he should gain a good mental conception of the working principle of the two cycle motor. He will then realize how essential tight compression is to the proper functioning of this type motor. Even as good compression is desirable in the four-cycle motor, it is vital to the two-cycle. Let us see why.

In Figure IV I have shown a longitudinal cross-section of a twin and have designated the points where compression can be lost: through the cylinder base gaskets; between the main shaft and the bearings; leakage by the piston rings. The first leakage practically never occurs on a new motor from the factory, as it would be detected and remedied in the inspection department, but if the cylinders have been removed and replaced by an unskilled and careless mechanic, it is possible—even probable.

Let us see what effect loss of compression—or leakage—has upon two cycle operation. In the first two cases—leakage through the gasket or around the shaft; assuming that the piston rings are gas tight—a quantity of air is drawn into the crank-case during its suction period, other than through the carburetor. The amount varies inversely with the speed of the motor: more air at slow speed; less at high speed. To compensate for the additional, varying quantity of air, the needle valve of the carburetor must be altered to meet changing conditions. This is why the early multi-cylinder, two cycle motor had a separate carburetor—or mixer valve—for each cylinder. The respective crank-cases did not have the same degree of air leakage and it was impossible for a single carburetor to supply the correct mixture to all the units.

Let us assume that the air leakage into the crank-case has been rectified by carburetor adjustment so as to establish a good mixture. A portion of this mixture is lost by outward leakage when the gas is compressed in the crank-case. Then a scanty charge is injected into the cylinder when the inlet port is uncovered. The amount of fresh gas is insufficient to displace all of the burnt gas of the previous explosion. So a quantity of the fresh gas is mixed with the dormant, inactive burnt gas and the resultant explosion is materially weakened: power is lost. Mixing burnt gas with fresh gas is like mixing ashes with coal.

The foregoing paragraph explains a feature of the two cycle motor not understood by many, namely; why a two-cycle motor can not be throttled down with the same nicety as the four cycle automobile motor. Obviously, the use of a throttle would limit the amount of gas entering the crank-case; a partially closed throttle skimping the amount. In turn, a scanty mixture would be injected into the cylinder. For every cubic inch of fresh gas cut off a cubic inch of burnt gas—ash—is left behind in the cylinder to mix with the fresh charge. Further closing of the throttle valve will bring about a condition where the fresh charge will be so greatly diluted with the burnt gas as to be incapable of being ignited. So, while a two cycle motor can be controlled in a limited manner by a throttle valve, the principle means of speed control is with the spark; in other words, by having a wide range of spark positions.

The effect of leakage by the piston rings in a two-cycle motor will be obvious to everyone who has read the foregoing text. Not only is power lost directly due to the leakage, but the burnt gas is blown into the crank-case diluting the fresh charge being compressed. Again the coal and ash condition—dilution—loss of power.

The reader can readily understand now that the two-cycle motor, with all of its simplicity of design, requires very accurate machining if it is to function at its best. In the modern outboard motor that end has been attained.

The writer has visited a number of manufacturers and has seen outboard motors in the making. The inspection limitations are just as rigid as those for a trans-atlantic airplane motor. One thousandth of an inch is no longer considered a close dimension. Some operations require accuracy to within three thousandths of an inch—ten times smaller than the thickness of a hair.

(Continued on page 226)

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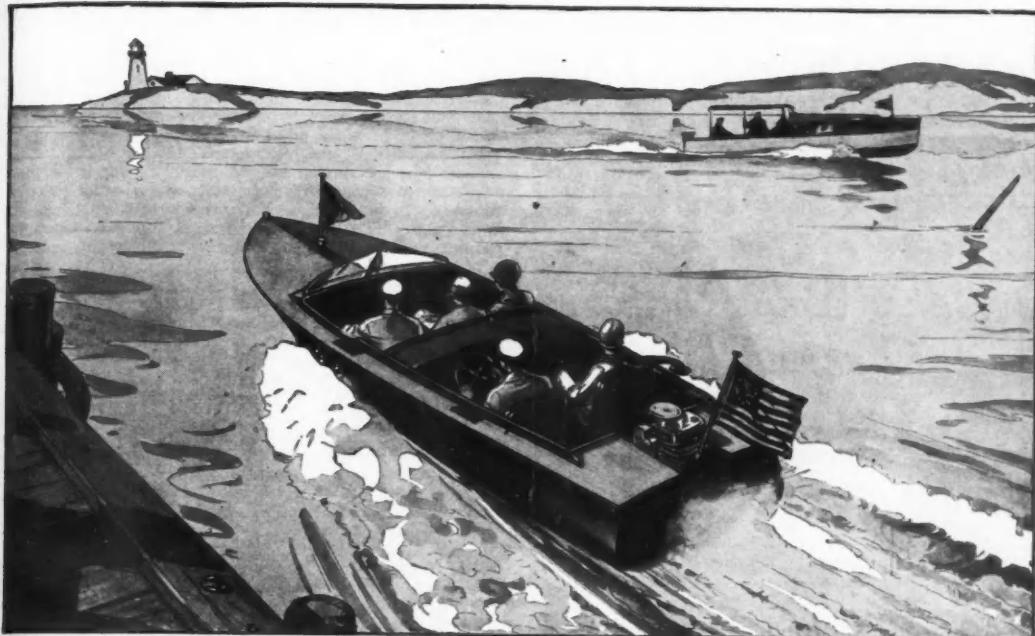
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## For Runabout or Cruiser — Quad Power!



*The*  
**Super Elto**  
**Quad**

4 cylinders, 49.74 cu. in. piston  
displacement. Enclosed power  
head. New remote synchronized  
controls for throttle and spark.  
New type muffler, efficient,  
quiet. Price, Hi-Speed Quad,  
\$325.00; Service Quad, \$295.00.

**S**WIFT as a scudding cloud . . . swagga and comfortable as a smart town car . . . . priced within reach of the slenderest purse . . . the finest small craft the world has ever seen will shortly go into the service of thousands of fortunate owners.

A dozen splendid makes there are to choose from—but a *single* model of motor is the dominant choice for the powering of *all*.

The 4-cylinder Super Elto Quad, smoothest, mightiest of outboard motors, was deliberately built to make such boats possible. In speed and power, not even the 1928 Elto Quad, official speed champion, can compare with this great motor. It is full 60% more powerful than before. It is superbly smooth, *vibrationless beyond belief*.

It owns the greatest advantage that can be offered in any large outboard—*quarter turn starting*. It starts instantly with a flip of the fly wheel against compression. In actual ease and absolute sureness of starting it stands alone among large outboards.

And, exclusively, the Quad offers full

reverse, automatically, at the touch of a button. Without this feature of reversing no runabout or cruiser can offer full control, full maneuverability.

Available only with the Quad is the new Quad system of complete remote control. With it the skipper handles his craft from the most convenient seat — steers with man-size steering wheel — accelerates, slows down, reverses or stops with a single, simple control.

The Quad is available in two models—the Hi-Speed Quad, America's fastest outboard racing motor—the Service Quad, specially built for runabouts and cruisers. A 2-to-1 reduction gear in the Service Quad translates high motor revolutions to heavy-load propeller efficiency. It will drive fast runabouts more than 35 M. P. H., light cruisers more than 20 M. P. H. It is outstandingly quiet. Stamina, reliability, long life, you can take for granted. Catalog gladly forwarded on request.

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... Makes Your Outboard  
a Real Runabout!

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Are Yours with Autopulse

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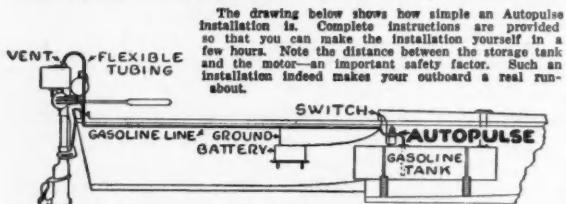
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Autopulse equipped outboards are winning events everywhere. At the right is the Stormcock—the first outboard motor boat to cross the North Sea—Autopulse equipped.



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Under ordinary fuel supply systems you are limiting the pleasure you can get from your outboard. You are limited in speed, power and cruising radius—potential pleasure is there that can be yours simply by installing Autopulse—the new electric fuel pump that brings out the best in any motor.

See the Autopulse at your dealer's. Or write us for full details.

## AUTOPULSE CORPORATION

2821 Brooklyn Ave. Detroit, Michigan

Autopulse Improves the Performance of Any Motor

### Why Is the Two Cycle Outboard Motor

(Continued from page 224)

In the opening paragraph of this article the question was asked: "Why is the two-cycle motor universally adopted for outboard motor use?" In a round-about way I have tried to lead the reader up to the common-sense, simple answer: because, when properly built, the two-cycle is a darn good motor!

But, even with the mechanical defects of the early motor remedied in the modern motor, there are certain inherent characteristics of the two-cycle motor which make it particularly adaptable to outboard use. Foremost among these is ease of lubrication. The outboard motor is the only example in mechanical fields where an internal combustion motor directly drives a vertical crankshaft. A four-cycle motor running in this position would require a very elaborate mechanical oiling system, whereas, with the two-cycle motor, positive lubrication is assured by simply mixing a quantity of oil with the gasoline. Of course, the same method of lubrication could be employed in the four-cycle motor by first drawing the mixture from the carburetor into the crank-case, thence via an intake manifold into the cylinder. However, gummed up and carbonized inlet valves would soon result. Failure of a mechanical oiling system for only a few minutes would result in serious damage to a motor. Two-cycle lubrication is the utmost in simplicity and dependability. Anyone who would forget or neglect to mix oil with the fuel is too careless to own a motor—or even a donkey.

Another feature of the two-cycle motor which commands its outboard use is its sturdiness. In the early motor building days, both the two-cycle and the four-cycle were approximately square motors: that is, the bore and stroke were nearly the same. Many readers will recall some of the early automobiles: Thomas Flyers, Matheson Brothers and the Popes, with motors of an inch bore and stroke, yet totally lacking in power, pep, and speed. As the four-cycle motor developed the trend was toward smaller bore and longer stroke. Today the stroke nearly doubles the bore. Obviously the long-stroke motor requires a larger crank-case and longer cylinders. So, if a four-cycle twin opposed outboard motor were designed in conformity with the present-day four-cycle engineering principle, the over-all length of the motor would be greater than the beam of many boats. It would be a disproportionate, ungainly piece of machinery.

Because of certain internal requirements, the two-cycle motor functions best when the stroke is less than the bore. The fundamental reason for this is that the volume of the crank-case must be as small as possible, so as to permit the greatest possible range of vacuum and compression, so that the gas can be quickly sucked into the crank-case and then injected into the cylinder proper. This results in a high speed motor. In the early days, 1,000 revolutions per minute was thought to be the maximum, efficient speed for a two-cycle motor. Today's outboard motors are delivering power at 4,500 r.p.m. and more.

The development of the two-cycle motor toward greater efficiency enhanced its adaptability for outboard use by making it sturdier and more compact. You may look at an outboard motor today and express surprise and doubt when told it develops 16 h.p. But just hook that little motor on the stern of a light boat, give the flywheel a flip, and skim out over the lake. When a 35 m.p.h. spray stings your face you will concede that there is 16 h.p. in the kicker on the stern.

The popularity of the two-cycle outboard motor is too deeply seated with thousands of fans to be ousted easily by its four-cycle brother. The development of the outboard motor during the past three years has been truly remarkable, even sensational. To meet the demand for more power—and still more power—and still more power—the outboard motor has jumped from a little 2½ h.p. unit to the 25 h.p. power plant of today. The four cylinder Quad is on the market and bids fair to gain in popularity. It offers the logical and practical solution to the demand for more power. Figure V shows the internal working of a Quad. It is possible that even more cylinders may be added in the future.

However, as the demand for more power continues, the multi-cylinder, radial type, four cycle motor has been put on the market. This motor is similar to the prevalent whirlwind type airplane motor. Such an outboard motor gives promise of remarkable performance. But even its advent will not crowd out the two-cycle outboard motor. On water-crafts all over the world the two-cycle outboard motor has proved to be too dependable to be entirely supplanted by the four-cycle motor.

### RELIEF FROM THE NOISY OUTBOARD

Press comments reaching the Johnson Motor Company at Waukegan, Illinois, from all parts of the country, indicate convincingly that the water motoring public has had about enough of the noise and racket of the outboard. Relief is now promised in the development of the new line of Johnson Sea Horses, which feature an underwater exhaust that does away with both noise and gas fumes. This new device should go a long way toward increasing the pleasure and comfort to be derived from the sport.

APRIL, 1929

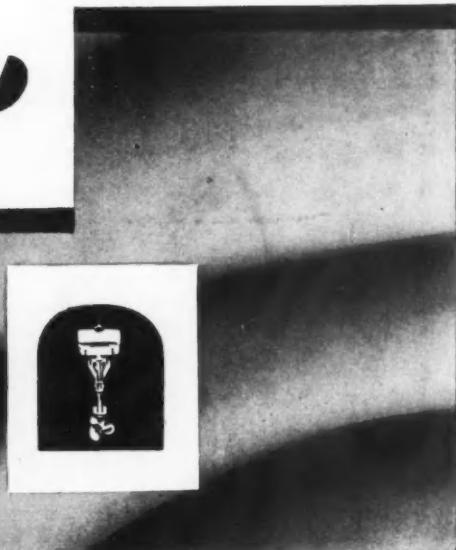
Motor

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**LYNITE**  
ALUMINUM ALLOYS



**O**PEN her up wide. Let the waves slap the bow and the wind whip back in your face. That's a thrill. Poke her nose up forgotten little rivers. Get out the old fishing tackle. That's sport. (Light. Rugged. Convenient. Powerful. Portable. Wherever you want it and whenever you want it. That's the outboard motor. (Aluminum, because of its light weight, made the outboard motor possible. Aluminum Company of America's LYNITE 195 heat treated aluminum casting alloys make it stronger and tougher than ever. They increase its resistance to shock and salt water corrosion. They increase its ability to stand up under higher speeds and harder usage. (That is why so many manufacturers use LYNITE pistons, forgings, and heat treated castings. They want to give you something *better*. Something *finer*. Something that means more fun on the water. You can show that you appreciate their efforts (and, incidentally, assure yourself of the best) by making sure that the vital parts of the outboard motor which *you* buy are made of LYNITE.

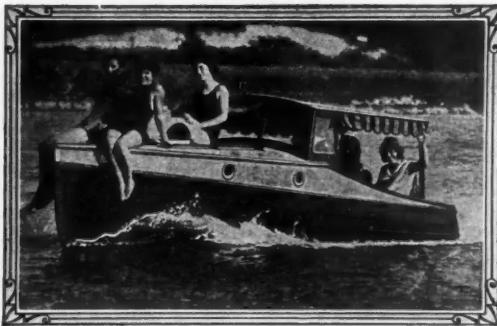
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## Tregoning 18-ft. Outboard Cruiser

Speed up to 18 M.P.H.

**\$690**

Crated and delivered  
to any main line ship-  
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Ready for a long cruise in perfect comfort—a trim, substantially built, beautifully finished, seaworthy little boat you'll enjoy every moment you can spare to be in it.

Roomy cabin forward, fitted with two man-size berths. Open cockpit 8 ft. in length—lots of room for passengers and luggage. Canopied top with five-light glass front. Running lights, berth cushions regular equipment.

Tregoning standard construction throughout—highest grade workmanship and materials. Selected cedar planking; oak keel, stem, guard, frames; mahogany transom.

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## OUTBOARD NOTES

### CONSISTENT WINNERS IN FLORIDA RACES

The Ludington Lightning seems to be keeping up its reputation for speed. In addition to the excellent results which this boat had at the races at Gulf Port, Winter Haven, and other points throughout Florida earlier in the season, it also captured for itself first place in all of the class C events at Palm Beach on Washington's Birthday. The same boat, which was driven by Earl Gresh, also took second place in the Grand Free-For-All. A Ludington Lightning driven by Gerry Blake won the Class C races for local pilots as well as the Chance Race.

The success of the Ludington Lightning for a time bid fair to steal the fire of the better known Ludington Hydro. However, we understand that the Ludington Hydro won all of the Free-For-All events at Punta Gorda on February 24, coming in a city block ahead of the nearest competitor. It is reported that the water had a two foot roll. This seems to uphold the contention of the makers of these boats, Ludington Aircraft Inc., that the Ludington Hydro is built for a two-reef breeze.



The fast Ludington hydro Lightning which has made some remarkable speeds in various Florida regattas this winter

### DEVELOPMENT IN OUTBOARD RUNABOUTS

The Dwight Lumber Company, of Detroit, has come into the market with a boat, the new Dee-Wite, which fills a long felt want in the outboard field.

The appearance, construction and finish is in every way equal to that of the big mahogany speedsters that are so much in vogue these days, as is the equipment. Nothing is left out of a Dee-Wite that could add to the comfort, pleasure and pride of ownership that the possessor must feel. There is a wealth of gleaming nickelwork to delight the eye of the beholder, and there is a wealth of real workmanship in the solid mahogany hull.

The outboard motorboat is undoubtedly the answer to the boating problems of the man who desires all the pleasures that boating can give himself and his family during the long summer months, yet who must maintain this boat on an average income. However, until very recently, the man who wanted an outboard boat has had to depend on one of two distinct types, neither of which was entirely satisfactory for all around use.

The most familiar type of outboard was of course, the one that resembles a re-conditioned rowboat. Seats were hard, lines were high and awkward, speed seldom exceeded ten miles. In short, it wasn't the type of boat a man felt like parading before his friends. On the other hand, while the speedsters gave a certain trimness of line, and a high rate of speed, they were uncomfortable, unsuited for more than two people, and, in many cases, actually unsafe.

The bottom of the Dee-Wite is double planked, with a layer of marine drilling set in lead paint between the layers of planking. Anti-fouling paint is used on the bottom. Sides are battened seam construction fastened to one piece full length oak chine, filled and varnished. Decks are seamed, and securely supported by oak deck beams. And, in addition to all the luxury equipment, such as bow and stern lights, two piece windshield, flagpoles, automobile type steering wheel, heavily upholstered cushions in red and green and heavily nickelized brass hardware, there is provided all the necessities.

These include hard maple fenders, self bailer, battery box, paddle, anchor and cable, wire steering cable with pulleys and fairleads, ignition cut out switch on instrument board, and armored ignition cable. And, for the man who wants to use the Dee-Wite as a tender, there are fore and aft lifting rings for raising it out of the water.

In short, the Dee-Wite is a complete mahogany hulled runabout. Backed by the many years of experience on the part of its builders, it certainly looks like the answer to a long felt want in the motor boat field.

(Continued on page 230)

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# THRILLING FAST STAUNCH AND SAFE

THE KEENEST  
BOATS IN THE  
OUTBOARD  
FIELD!

*Built for a Hundred  
Uses . . .*

Racing  
Fishing  
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Camping Trips  
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Cool Summer Rides  
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Picnicking Afloat  
Summer Cruising

## WaterWitch

2 MODELS

The STEPABOUT

**\$295** Complete

The RUNABOUT

**\$373** Complete

DEALERS

An exclusive territory franchise is offered on these two fine boats to responsible parties who wish to grasp an unusual opportunity. Write or wire us immediately!



## WaterWitch

"Sweeps the Water"



The WaterWitch Runabout is a five passenger genuine mahogany V bottom outboard, offering the family a fast, comfortable, safe means of water travel.



A mahogany folding table that slips under the forward deck is part of the standard equipment in the Runabout. Ideal for picnics, card playing, or camping.



Seats and seat backs upholstered in Zapon Spanish leather may be quickly lowered to form a large comfortable bed for two.



This is the WaterWitch Stepabout—a 14 foot step plane that holds a record of 31.02 m.p.h. over a six mile course in very rough water. You can use it for racing or pleasure with the utmost satisfaction.

**DACHEL-CARTER BOAT., Inc.**  
BENTON HARBOR MICHIGAN

*Catalog on Request*

# Get AN Airubber PAD and FLOAT



IN small racers and speed boats, nothing is so good as the Airubber Floor Pad and Float. Absorbs jump shock, does not watersoak, cushions new in perfect comfort. Helps to keep the boat afloat if upset.

For larger boats, luxurious cockpit or deck cushion, bunk mattress, swimming float.



Strong khaki jean, rubber inside; vulcanized in one fabric and one complete jumbo air cushion. Ample air capacity. New fast valve of brass, nickelized, with interchangeable caps for inflating any way. Size 26 1/2" x 48". Deflated, folds small as shown; weight only 4 lb. Price, \$10.00. Many other sizes; please write for prices.

**Neptune Life Preserver**  
The Airubber Neptune Life Preserver gives you best protection with least weight and most comfort. Official equipment on all U. S. Navy seaplanes. Two separate pairs of tubes, two valves. Worn deflated is light and comfortable as a vest. Inflated in a jiffy with two or three blows. Weight 17 oz. Price \$5.00.

Sold by all best camp outfitters. If not on display please write.

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Folders and 2 qt. camp water carrier mailed to you FREE.

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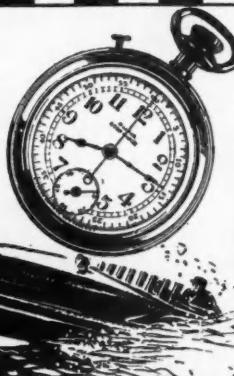
Time it with a PASTOR!

Is your engine hitting true? Are you getting as much speed as last year? The PASTOR will tell you! The PASTOR is a dependable watch with a fifth second stop-watch attachment independent of the movement. Times races, speed of your flywheel, shafting, gears, etc. PASTOR has nickel finish case and unbreakable crystal. Fully guaranteed. Sent C. O. D. \$9.95. Send for one today!

No. 100 - Yacht Timer \$15.00.

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## 60 Miles in Amazing 15 LB. BOAT

I feel I must inform you that I have recently returned from a four day float trip on the Niangua River here in Missouri, and used your boat continuously throughout the sixty miles of the float. I gave it the hardest kind of usage, shooting rapids, passing through narrow, brushy and rocky places, etc., and found it to ride the water remarkably well. At night I turned it over, and after drying the bottom, used it as a mattress, and slept just as comfortably as if I had been in my own bed at home.

We put in the Niangua River near Buffalo, Missouri, and took out at Bennett Spring Branch. —P. C. H., Chief of Hatcheries, Missouri.

### 10 DAYS' FREE TRIAL

An ideal Tender, Playboat, Duckboat. Used by the Navy as Seaplane Lifeboat. Rolls up like a blanket and packs in a bag. Comes complete with Oars, Pump and Bag. Write for Catalog and 10 days Free Trial offer.

**THE NEW ENGLAND AIRSHIP CO.,**  
125 WILLOW STREET, NEW HAVEN, CONN.  
Contractors to the U. S. Navy



THE FLATO BOAT

## OUTBOARD NOTES

(Continued from page 228)

### EXTRA SPEED FOR THE RACING CRAFT

Balubricote, the bottom coat for faster boats, which was heralded as the most sensational marine formula in years, has certainly made good. No less than thirty-two of the forty-six official world records for outboards for 1928 were established by Balubricoted boats.

A long list of winners of A.P.B.A. championship medals has given unstinted credit to this bottom lubricant. It must be good when it is used and recommended by the following racers: Bill Frey, Al Buffinton, Homer Bair, Ross Maddocks, Alice Hall, David Mackay, Arthur Sutherland, H. E. Hauptner, Kneeland Jenkins, Kirk Ames, J. E. Wilkinson, Charley Holt, Dr. J. E. Rogers, Vince Rogers and C. P. Stevens.

Ludington, Century, Cute Craft, Baby Whale, Fairchild, Old Town Canoe Company and the Sea Sled Company are among the many builders who consistently use and endorse Balubricote.

### FINE SHOWROOM AT HOUSTON

L. Lechenger has just completed a new building to serve as sales headquarters for outboard boats and engines in Houston, Texas. The rapid growth in popularity of boating within recent years has made it necessary to seek larger and better quarters and the new salesroom will permit a proper display of boats, engines and accessories. The firm of Lechenger is well known throughout the southwest and the new marine department which is devoted entirely to boats and engines has grown so rapidly as to make the new quarters necessary. Prominent among the products displayed are the full line of Laconia outboard boats as well as Lockwood outboard engines, and Duplex the special outboard lubricant.



Interior of the showroom at Houston with the Laconia boat, Lockwood engines and Duplex oils prominently displayed

### ADDITIONS TO OUTBOARD LINE

Although the Fairchild outboard line was already one of the most representative in the industry, including every type from a small racing machine up to an outboard cruiser, the company was not satisfied that they had produced a type exactly suited to the man who demands a smart, fast double cockpit runabout with ample speed but a great amount of looks.

The Fairchild Superba is considered one of the smartest outboard runabouts ever designed but the price is necessarily high due to the great amount of time and material spent in putting in those deft touches which set a high quality boat so far apart from one of the ordinary production jobs.

To fill the demand for the runabout with both looks and price the Fairchild Perfex was designed. This 16-footer has a 6-foot beam, two cockpits each protected with a mahogany wind break and seating accommodations for four or five people. All controls are brought to the after cockpit where a neat steering wheel is installed.

The hull is of mahogany finished bright with anti-fouling paint on the underbody. The plankshears are of mahogany and open wide so that the passengers have the sensation of sitting a great distance away from the water with all that this implies in comfort. Both the forward and amidship decks are finished in the usual Fairchild airplane surface.

The first of this new model was recently tried out in New York and created a surprise by her speed and ease of handling. Under all conditions of loading it was found that the stability was far greater than is usually considered as a safety factor. In rough water the boat behaves in the usual Fairchild manner due to the characteristic shock-absorbing bow which prevents pounding and diving. The sensation of running in rough water with one of these boats can only be described by terms like action squishy, instead of the usual pounding experienced with boats of the conventional type. As the Fairchild bow enters the sea, air drawn down the longitudinal steps create air cushion which prevent any of the uncomfortable pounding and consequent damage to the hull.

(Continued on page 232)

APRIL, 1929



*Built for a  
Two-Reef Breeze*

*-faster*

**THAN ANY EXISTING OUTBOARD RECORDS!  
SIX MILES PER HOUR BETTER THAN THE BEST!**



### RESULTS

ADDITIONAL 1929  
up to Feb. 25th.

#### GULFPORT, FLORIDA

February 10, 1929

Ludington Lightning won one heat "C" class, one heat Free for all.

: - :

#### NEW PORT RICHEY FLORIDA

February 17, 1929

Ludington Lightning won all "C" class events.

Ludington Hydro won second place.

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#### PALM BEACH, FLORIDA

February 22, 1929

Ludington Lightning won all "C" class events.

Ludington Lightning won second Free for all.

Ludington Lightning won "C" class for local pilots.

Ludington Lightning won chance Race.

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#### PUNTA GORDA, FLORIDA

February 25, 1929

Ludington Hydro won all Free for all events.

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*World's Record for 2½ Miles of  
36 Miles per Hour Bettered by a*

## LUDINGTON LIGHTNING

2½ Mile Course. Time 42.65

Place—Mt. Dora, Florida

Date—March 2, 1929

Again and again, Ludington boats win races. It is not luck. Ludington boats place because they are built properly. Aircraft principles of construction assure maximum strength without undue weight. Weather makes no difference. You can go out and win with a Ludington, because our boats are "BUILT FOR A TWO-REEF BREEZE."

#### THE LUDINGTON HYDRO

\* 14 foot rough water racer.  
\$250 F.O.B. Phila.

#### THE LUDINGTON LIGHTNING

\* 12 foot improved light racer.  
\$225 F.O.B. Phila.

#### THE LUDINGTON BUCCANEER

\* 16 foot fast, comfortable family boat  
\$425 F.O.B. Phila.

*Learn what a lot of inexpensive fun there is  
to be had from a good outboard. Ask us to  
send literature describing Ludington boats.*

**LUDINGTON**

**LUDINGTON AIRCRAFT, Inc.**

808 ATLANTIC  
BUILDING



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PENNA

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*The All-Weather Utility Suit*  
Patent Pending

## For Yachting, Motor Boating and Out-Boards





Patent Pending

**ONE-PIECE** Waterproof and Windproof of double texture cloth with rubber vulcanized in between. Famous Bustproof Talen Hookless Fastener at front and sides of legs. Waterproof elastic at wrists, ankles and waist. Small spat to cover shoe. **DETACHABLE HOOD.** Easily put on—weighs 35 ounces.

**Khaki Color—\$12.50**   **White Color—\$18.50**

**Sizes—Small, Medium and Large. Extra Large 10% extra.** (Give measurements when ordering—send check and we will ship direct, postpaid. Or through your local dealer.)

**UTILITY GARMENT CORPORATION**  
(Dept. M. B.)

138 So. 9th Street Philadelphia, Pa.

**DEALERS:** Write for full selling details of this new garment.



*This motor-driven boat is ideal for your family's summer camp*

WHAT'S a summer camp without a boat? And you couldn't get a better boat for the whole family than this square-stern Old Town, especially designed for a portable motor. Light, yet built to carry heavy loads. Swift, yet sturdy, dependable and safe. Graceful and easy to handle too. Comes with or without sponsons.

Write today for free catalog. It shows and prices many light, water-tight models. Paddling, sailing and square-stern canoes, extra-safe Sponson models, dinghies and sturdy family boats. Also speedy craft for outboard motors—racing step planes and hydroplanes. Old Town Canoe Co., 985 Middle Street, Old Town, Maine.

**"Old Town Boats"**

## Save with SANDUSKY BOATS



**I**F you want a speedy little sport boat or a staunch family outboard runabout you'll get the best from Sandusky—AND SAVE 15% TO 25%. Sandusky boats are made from the choicest mahogany wood and are perfect in design and workmanship. Write today for free information on all types and prices. Dealers write for franchises.

**SANDUSKY BOAT WORKS**  
304 MEIGS STREET SANDUSKY, OHIO

## OUTBOARD NOTES

(Continued from page 230)

### OUTBOARD MOTOR SAVES TUG

The saving of a tugboat worth in the neighborhood of \$20,000 to its owner, from complete loss, is the latest feat which has been chalked up for the Johnson Big Twin motor.

Down in Jennings, Louisiana, G. B. Zeigler operates the tugboat Gertrude daily up and down the Mermanteau River in his business of dredge contractor and crude oil broker.

One day recently, the tug sprang a leak. The engine room was flooded, the engine was put out of commission and the tug, powerless, was sinking fast in some ninety feet of water. Things began to look as if the boat would go down, a total loss to its owners.

Mr. Zeigler had a light boat on deck which was powered with a Johnson Big Twin. He put the boat overboard, started the outboard motor, and was able to push the boat, tug and all to shore where he tied it in such a manner that it could not sink entirely. Later he was able to raise it and put it back into commission with a small amount of expense.

### SUBMERGED MOTOR LOCATED BY RADIO

A short time ago, Charles R. Enlow, a colleague of Professor Skellett in the college of engineering at the University of Florida, lost a Johnson outboard motor in Orange Lake, near Gainesville, Florida.

Professor Skellett, who is also an electrical engineer for radio station WRUF, devised a strictly scientific scheme for recovering the lost outboard. He decided to use radio waves, and contrived an electrical apparatus somewhat similar to an amateur's radio sending set.

Armed with their treasure hunter they motored to Orange Lake and took a boat to the approximate spot where the motor took its plunge.

The apparatus was lowered into the lake and the electric current turned on. A meter was also lowered to record the strength of the current. As soon as the hunters neared the submerged motor, the meter reading dropped off, due to the fact that the motor absorbed more of the electric current than did the sandy bottom. The motor was recovered and was soon running again, none the worse for its bath.

### OUTBOARDS RACE ON SALTON SEA

The lowest down outboard race ever held was staged on Sunday, February 10, by the newly formed Salton Sea Motorboat and Yacht Club on the Salton Sea near Coachella, California. The race course is 250 feet below sea level and the water is six times as salty as the ocean. A permanent 2½ mile course has been laid out with a mile straight-away, electrically timed. Exceptionally fast time was registered and thousands drove across desert sands to watch the twenty fast entrants race. Local interest in boating has been aroused to a high pitch through the efforts of C. O. Murphy, the local Commodore and entries from all over Southern California participated.

As usual Blue Streak, piloted by H. G. Ferguson, won both heats of the Class C free-for-all, averaging 39.13 m.p.h. for five miles of the fastest time of the day. He was closely followed by Felger's Sea Gull, Floyd Pierce's Miss Salton, Al Thomson's Black Maria III, and Loretta Turnbull's Sunkist Kid II. Miss Salton also turned in two heats at 39.04 m.p.h. over the five mile course.

In a novice race, W. D. Lount of Long Beach, driving for the first time, won at 37.43 m.p.h., driving the old Miss Elsinore. The 16 year old Canadian drove a beautiful race and was also placed third in the Class D event.

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MIDDLETOWN, CONN.

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The Crouch Designed Outboard Racer, and the HARPOON—a fast, safe, easy riding family runabout.

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